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CAUSES OF FAILURE IN THE TREATMENT OF DIABETES OF CHILDREN *

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Before the discovery of insulin, juvenile diabetes was almost invariably fatal. Senator,[1] in 1872, declared that the prognosis was hopeless and all treatment useless. More recent writers have made the same observation. Priesel and Wagner [2] stated that all patients who had been seen from 1912 to 1923 had died sooner or later from coma. In the experience of authorities such as Naunyn [3] and von Noorden,[4] there were few exceptions to the general rule. It is true that careful treatment frequently controlled the disease and prolonged life for a considerable time, but the ultimate fate was rarely avoided. Joslin,[5] who had treated 169 children with diabetes from 1914 to 1922, reported that one third were still living at the end of the period but expressed this achievement merely as "coma deferred." The experience in the Mayo Clinic was similar. Thirty-two children with diabetes were seen at the clinic in the three years before the introduction of insulin. One was admitted moribund from coma. Twenty-eight received training in dietary management; nine of the latter survived to benefit by insulin. Two have not been traced. The death of all the others has been reported.

Insulin has changed the prognosis completely. One hundred and sixty-seven children were treated at the Mayo Clinic in the first six years after the introduction of insulin. Recent reports have been received from all but three, and we know that 147 were still alive in 1928. One child was ill with severe rickets which antedated diabetes, and two children were in poor condition largely because of unsatisfactory care at home. The remainder were enjoying good health and were able to carry on with all the activities of healthy boys and girls.

Most of the children came to the Mayo Clinic from a considerable distance. As a rule, treatment was commenced early in the course of the disease. Some of the patients returned for reexamination and treatment at intervals of six months or a year, but in many cases contact could be maintained only by correspondence with the parents of the patient or with the family physician. With certain exceptions, instruction was given in the use of insulin. Practically all the patients received diets of the composition we have considered to be most advantageous in diabetes. These diets are described elsewhere.[6] In general they contain for each child not more than 50 Gm. of protein; carbohydrate is moderately restricted, and fat is depended on as the main source of calories. The calory requirement is estimated as accurately as possible to provide adequate nutrition, and exact attention is paid to the supply of vitamins and minerals. With few exceptions, growth and development have proceeded normally, and in the case of the girls, menstruation usually has been normal after they reached puberty. A fact that may be taken as an indication of the good nutrition of our patients is the absence of tuberculosis in all of them; this disease has always been considered a serious menace to patients with diabetes.

The results of treatment, before and after the introduction of insulin, are summarized in tables 1, 2 and 3. Reports from other sources are similar. Joslin's data are almost identical. Among 235 children with diabetes treated by Joslin during the first five years of treatment with insulin, there were thirty-six deaths, a death rate of 15 per cent. In a recent period of twenty-two months, the annual mortality proved to be about 1 per cent. Similar results in smaller series of cases have been reported by Geyelin,[7] von Noorden, Priesel and Wagner, Boyd [8] and Rabinowitch.[9] In 1926, Priesel and Wagner had treated forty-three patients with juvenile diabetes without a death. Toverud,[10] in Norway, has not been so successful, owing to difficulties encountered in management at home.

Since the progress of the majority of our juvenile patients with diabetes has been so satisfactory, the deaths which have occurred in seventeen cases demand careful investigation. Details concerning these fatalities are given in table 4. Only one death occurred in Rochester; in this case the child was brought to the Mayo Clinic moribund from diabetic coma. The remaining patients were not under our immediate observation; eight had not been seen for from six months

* From the Division of Medicine, the Mayo Clinic.

* Read before the Section on Pharmacology and Therapeutics at the Eightieth Annual Session of the American Medical Association, Portland, Ore., July 11, 1929.

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2. Priesel, R., and Wagner, R.: Die Pathologie und Therapie der kindlichen Zuckerkrankheit, Ergebn. d. inn. Med. u. Kinderh. **30**: 535-730, 1926.
3. Naunyn, Bernard: Der Diabetes melitus, Vienna, Alfred Hölder, 1906.
4. Von Noorden, Carl: Die Zuckerkrankheit und ihre Behandlung, Berlin, A. Hirschwald, 1917.
5. Joslin, E. P.: Treatment of Diabetes Mellitus, ed. 4, Philadelphia, Lea & Febiger, 1928.
6. Wilder, R. M.: Primer for Diabetic Patients, ed. 3, Philadelphia, W. B. Saunders Company, 1927.
7. Geyelin, H. R.: Recent Studies of Diabetes in Children, Atlantic M. J. **29**: 825-830 (Sept.) 1926.
8. Boyd, Gladys L.: Course and Prognosis of Diabetes Mellitus in Children, Canad. M. A. J. **17**: 1167-1172 (Oct.) 1927.
9. Rabinowitch, I. M.: Juvenile Diabetes, Canad. M. A. J. **20**: 488-493, 1929.
10. Toverud, K. U.: Insulin Treatment of Diabetes Mellitus in Children, Brit. J. Child. Dis. **24**: 185-208 (July-Sept.), 257-302 (Oct.-Dec.) 1927.

to three years. Information regarding death was received either from the family physician or from the parents.

ANALYSIS OF FATALITIES

Causes Other than Diabetes.—Death occurred in two cases (1 and 2) from diseases not related to diabetes; namely, epidemic encephalitis, and influenza with bronchitis. Diabetes may have had some influence on the course of these diseases but was not significant in bringing about death. In each case, glycosuria was controlled more or less completely throughout the illness. In case 3 the cause of death was reported as cerebral meningitis, but since diabetic management had been very unsatisfactory because of domestic difficulties, one suspects that coma may have been responsible.

Patients Not Treated with Insulin.—Coma was the cause of death in all the remaining cases, without much doubt, although in three cases the information is too meager to be certain. In cases 4, 5 and 6, death occurred without any attempt at treatment with insulin. These cases were all mild enough at the time the patients visited the clinic to permit control by dietary management alone.

In case 4, rapid progress of the disease caused a return of glycosuria and fatal termination five weeks after the patient left the hospital. Prompt response to dietary restriction in early cases of diabetes often gives a false impression as to favorable prognosis. The tragic outcome illustrated by an experience such as this forces us to regard juvenile diabetes as always potentially severe. In late years we have found it wise to prescribe insulin in small dosage in almost all juvenile cases, even when it is not needed to control glycosuria. This may possibly check the progress of the disease and in any case permits immediate control, should failure in tolerance occur. If insulin is not given, at least the parents should be trained to inject it on the appearance of glycosuria.

The mother of one patient (case 5) was conscientious in the management of her child's diet but was prejudiced against injections of insulin. When dietary restriction failed to control the disease, she gave up in despair. The parents of another patient (case 6) were unwilling to bother with dieting and resorted to chiropractic.

Delay in Diagnosis.—One patient (case 7) was admitted to the Mayo Clinic in a moribund condition. Diabetes had not been recognized until the day before admission. The symptoms had not attracted attention until the appearance of acidosis two days previously. Abdominal pains and vomiting at first led to the erroneous diagnosis of appendicitis. The patient had been in coma for twenty-eight hours when we first saw her. This case shows how the abdominal symptoms of acidosis may lead to error in diagnosis and to serious delay in the institution of treatment.

Inadequate Use of Insulin.—Death occurred in nine cases in which treatment with insulin had been started at the Mayo Clinic. The explanation of the death of a patient (case 8) treated in 1923 is briefly given in the following letter from the family physician: "These people put the child under the care of another doctor shortly after her return from Rochester. This doctor discontinued the insulin and the child promptly died."

At that time the medical profession was not generally familiar with the use of insulin. An error of this kind is not so likely to be made by a physician today, although an occasional patient still reports that his family physician "does not believe in insulin."

In five cases (9, 10, 11, 12 and 13) death occurred from coma because of inadequate use of insulin, and case 14 probably belongs in this group. The dosage of insulin employed was not sufficient to control glycosuria; this, probably associated with carelessness in dieting, led to acidosis and coma from progressive loss of tolerance.

The mother of one patient (case 9) wrote that she did not use as much insulin as she knew was needed, because of the "torture" of the injections. The death of the child was reported a month later. When insulin was first introduced, the injections were often painful. At the present time, with a more highly purified extract, few patients complain. Many children are able to give themselves the injections, quite contentedly. It is unfortunate that treatment with insulin necessitates a hypodermic injection two or three times daily, but the discomfort cannot be considered serious when health and life depend on it.

TABLE 1.—*Fatalities in One Hundred and Ninety-One Cases*

Date of Registration	Cases	Deaths	Mortality, per Cent	Duration of Diabetes in Fatal Cases (Months) Minimum	Maximum	Average
Preinsulin Period						
Oct. 1, 1919-Oct. 1, 1920	11*	9	90.0†	4	26	17
Oct. 1, 1920-Oct. 1, 1921	11	9‡	90.0†	2	47	17
Oct. 1, 1921-Oct. 1, 1922	10	4	40.0	10	23	18
Insulin Period						
Oct. 1, 1922-Oct. 1, 1923	40	7	17.5	2	51	25
Oct. 1, 1923-Oct. 1, 1924	26	2	7.7	2	17	10
Oct. 1, 1924-Oct. 1, 1925	19	4	21.1	15	44	31
Oct. 1, 1925-Oct. 1, 1926	22	1	4.5	28	28	28
Oct. 1, 1926-Oct. 1, 1927	29	1	3.5	2	2	2
Oct. 1, 1927-Oct. 1, 1928	23	1‡	4.3	2	2	2

* Including three registered patients who did not remain for treatment.
† One patient, not traced, was not included in calculation of death rate.
‡ One patient in 1921 and one in 1928 were admitted moribund from diabetic coma.

TABLE 2.—*Summary of Mortality*

Preinsulin period, Oct. 1, 1919 to Oct. 1, 1922	
Patients	32
Patients traced	30
Deaths (including one patient moribund from coma on admission, and three patients not remaining for treatment)	22
Mortality, per cent	73.3
Insulin period, Oct. 1, 1922 to Oct. 1, 1928	
Patients (including eight survivors from the preinsulin period)	167
Patients traced (1928)	104
Deaths (including one patient moribund from coma on admission)	17
Mortality, per cent	10.4

TABLE 3.—*Annual Mortality*

Date of Registration	New Cases	Old Cases	Total Under Treatment	Deaths	Mortality, per Cent
Preinsulin period					
Oct. 1, 1919-Oct. 1, 1920	11	..	10*	2	20.0
Oct. 1, 1920-Oct. 1, 1921	11	8*	18*	7	38.8
Oct. 1, 1921-Oct. 1, 1922	10	11	21	8	38.1
Insulin period					
Oct. 1, 1922-Oct. 1, 1923	40	13†	53	7	13.2
Oct. 1, 1923-Oct. 1, 1924	26	46	72	4	5.5
Oct. 1, 1924-Oct. 1, 1925	19	68	87	3	3.4
Oct. 1, 1925-Oct. 1, 1926	22	84	106	3	2.8
Oct. 1, 1926-Oct. 1, 1927	29	103	132	3	2.3
Oct. 1, 1927-Oct. 1, 1928	23	129	149*	2	1.3

* Patients not traced were not included.
† Three patients did not return for insulin treatment. In another instance, the parents abandoned insulin treatment without adequate trial, and later resorted to Abrams treatment. All four patients died.

The family physician who was called to see one patient (case 10) when in coma, wrote: "The parents were unwilling to have the insulin treatment pushed. . . . They thought it was just prolonging their ment." The physician in case 11 expressed a similar opinion. His letter read " . . . A hypo of morphia gave temporary relief. They gave her insulin after this, but she died the next day. . . . It

TABLE 4.—*Summary of Clinical Data*

Case	Sex*	Age at Onset, Years	Age at Death, Years	Duration of Diabetes, Years	Onset of Diabetes	First Examination	Subsequent Visits	Date of Death	Comment
1	♂	2.5	5	2.5	1924	July, 1926	.....	December, 1926	Diabetes satisfactorily controlled; encephalitis with irregular fever, stupor, and almost continuous involuntary movements until fatal termination after several months
2	♀	1.5	5 and 5 months	4	February, 1921	May, 1921	October, 1921 March, 1925	1925	Lived twenty-five months after onset of diabetes without insulin; glycosuria successfully controlled by careful dietary management until November, 1922; insulin started in March, 1923; subsequent progress satisfactory until fatal attack of influenza with bronchitis; diabetes well controlled during terminal illness
3	♂	11	13	2	April, 1925	April, 1925	.....	April, 1927	Glycosuria not controlled; dietary management neglected, and insulin used irregularly; patient in dangerous condition for several months; cause of death reported as cerebral meningitis; details unknown; possibly diabetic coma
4	♂	2.5	2.75	2 mo.	December, 1922	January, 1923	.....	February, 1923	Diabetes treated at clinic three weeks after onset of symptoms; promptly controlled by dietary management; family physician reported that glycosuria returned and death occurred five weeks later; insulin not used
5	♂	5	6	1	February, 1923	April, 1923	October, 1923	February, 1924	Diabetes well controlled by dietary management until December, 1923; glycosuria returned; mother permitted child to eat anything; death in two months, presumably from coma; mother refused to use insulin and did not keep in touch with physician
6	♂	3.5	3.75	6 wk.	November, 1923	November, 1923	.....	December, 1923	Patient brought to clinic a few days after discovery of glycosuria; urine contained 7.99 per cent sugar on arrival but became sugar-free on second day in hospital without insulin; mother refused to learn dietary management and went to chiropractor; death occured in six weeks
7	♀	10	10	Several weeks ?	February, 1928	March, 1928	.....	March, 1928	Diabetes not recognized until day before admission; onset of acidosis, two days previously, confused with appendicitis; admitted to clinic in moribund condition after twenty-eight hours in coma; died less than two hours after admission.
8	♀	2	2	A few months	August, 1923	August, 1923	.....	?	Diabetes controlled with insulin; family physician reported that another physician had advised against the use of insulin; death occurred soon after
9	♂	9	10	10 mo.	December, 1922	December, 1922	.....	October, 1923	Treatment with insulin began shortly after onset; progress satisfactory for several months; glycosuria returned; mother did not use sufficient insulin because of "torture" of injections; death was undoubtedly due to inadequate treatment
10	♀	8	9	1.5	April, 1923	February, 1924	.....	October, 1924	Treatment with insulin was begun early but was not used effectually; patient lost ground gradually; when coma appeared the parents did not favor further treatment because they thought the outlook was hopeless
11	♀	11	14	3	March, 1925	March, 1925	.....	February, 1928	Treatment with insulin commenced at clinic two weeks after onset; progress was apparently satisfactory, but almost constant glycosuria was permitted after returning home; fatal coma occurred without explanation, other than failure to use sufficient insulin
12	♂	9	10	14 mo.	April, 1923	May, 1924	.....	June, 1924	Satisfactory progress with insulin treatment for a few months; later, glycosuria was not controlled; gradual increase in severity of diabetes, terminating in coma, apparently because of inadequate control
13	♂	10	11	3	1923	July, 1925	.....	May, 1926	Cause of death uncertain; probably due to inadequate control
14	♀	7	7	4 mo.	January, 1927	March, 1927	.....	May, 1927	Details regarding progress after leaving hospital not obtained
15	♀	9	12	3	August, 1922	January, 1923	July, 1925	August, 1925	Insulin commenced in January, 1923; good progress until December, 1924, when it became difficult to control glycosuria completely; coma in June, 1925, with recovery; large amounts of insulin given in four doses daily were required; death in August, 1925, after an illness of two or three days commencing with vomiting, and terminating in delirium and coma; death probably due to diabetic coma; the family physician also suspected nephritis
16	♀	2 and 7 months	3.75	14 mo.	December, 1924	January, 1925	.....	February, 1926	Coma probably precipitated by infectious disease of uncertain origin; dependence on defective Benedict's reagent delayed discovery of glycosuria and recognition of acidosis; large doses of insulin given, apparently resulting in fatal hypoglycemia
17	♀	12	16	4.5	August, 1919	March, 1923	.....	February, 1929	Onset of diabetes with polyuria and polydipsia; controlled by qualitative dietary restriction; unusually benign course for more than three years previous to visit to clinic; liberal diet tolerated without hyperglycemia or glycosuria; dextrose tolerance test gave typical diabetic response; advised to follow dietary regimen; death eleven months later; details not reported

* In this column, ♂ denotes male; ♀, female.

little daughter's suffering." The physician seemed to share the pessimistic view of the parents, for he added, "Children who were afflicted with diabetes never lasted long under the old methods of treatment, and it seems that they do not last much longer under insulin treatseems to me that the disease goes on in spite of insulin and every other measure."

These letters are illuminating, as they show not only the despair of parents who see their children fail under unsatisfactory treatment with insulin but also the

attitude with which some physicians still face the situation. In the latter case, the physician, instead of directing the parents to give the needed amount of insulin, gave a hypodermic injection of morphine and apparently thought there was nothing more to be done.

Insulin should have saved the lives of these children. Insulin has saved patients with diabetes from death in coma in almost miraculous fashion. It is time that every one realized that insulin can restore children with diabetes to health and can maintain them in health for perhaps a normal lifetime. Yet insulin must be used in the proper way. Patients who must use insulin need careful training and continuous supervision. It must be admitted that the supervision in these six cases in which the patients died through failure to get enough insulin was not ideal. Only one patient of this group had revisited the clinic after starting treatment, and an average period of two years and eight months had elapsed between the time we last saw the patients and the time they died.

Resistance to Insulin.—There are certain cases of severe diabetes which are extremely difficult to control, cases which require large doses of insulin three or four times a day and in which the patients pass rapidly into a state of acidosis if an injection is missed or if the dosage is inadequate. The disease in case 15 appeared to be fairly mild when treatment with insulin was commenced in January, 1923, but two years later it became very severe. It was difficult to control glycosuria completely, and coma developed in June, 1925. Large doses of insulin were required for resuscitation, and for several days afterward from 100 to 150 units of insulin was given daily. It seemed impossible to keep the urine sugar-free continuously. The patient died in August from an illness that began with vomiting and terminated in delirium and coma. The nature of the illness is not entirely clear, but the description suggests diabetic acidosis.

In this case, perhaps, there was manifested in some degree the rare phenomenon of resistance to insulin in which insulin fails to exert its usual effect. A number of cases have been reported in which the requirement of insulin has increased to from three to twenty times the maximal amount needed for ordinary diabetes of severest degree. One patient seen at the Mayo Clinic required several hundred units daily and on one occasion was given 1,000 units in one day.[11] Even these patients respond satisfactorily as a rule if sufficient insulin is given and since the disturbance is often only temporary it is of the greatest importance to use the amount of insulin required, however great that may be. The rarity of cases of real resistance to insulin makes it impossible to assume that many deaths have occurred from this cause.

Hypoglycemia.—It is well known that the occurrence of a complication, especially a febrile illness, brings about aggravation of diabetes. Sometimes mild diabetes becomes extremely severe, and the difficulty in controlling the disease is a source of danger. It is rather surprising to find that in only one case of the group here reported did a complication appear to be an important factor in leading to fatal coma. Of course, in other cases, colds or infections which seemed too insignificant to report may have been responsible for the fall in tolerance.

In the case in question (case 6), the nature of the infection that precipitated coma is uncertain. An unfortunate circumstance which delayed the discovery of glycosuria and the recognition of acidosis was the use of defective Benedict's solution for the urinary test. The parents thought that the urine was sugar-free, while the physician who was called at the onset of coma, using a different solution, found that the urine contained a large amount of sugar. Ninety-five units of insulin was given in divided doses in about fifteen hours. The child regained consciousness, sat up in bed, asked for a drink and then became unconscious again. The physician, thinking that more insulin was needed, gave an additional dose of 20 units. The child remained unconscious. A physician who saw the child six and a half hours later suspected hypoglycemia. Dextrose was given intravenously, subcutaneously and by rectum. There was practically no improvement, and death occurred soon afterward.

There are several instructive features in this case. It is not uncommon for patients to obtain improperly prepared Benedict's solution. Sometimes the quantitative solution is dispensed instead of the qualitative solution. The serious consequence of dependence on a misleading test is apparent. To avoid these errors it is our practice to teach patients to check every fresh supply of Benedict's solution. This is done by adding a drop of corn syrup or honey to 5 cc. of solution and boiling it as in testing the urine. Failure of appearance of the brownish-red color indicates that the solution is not dependable.

The course of events in this case seems to indicate that the child passed from diabetic coma into hypoglycemic coma. The dosage of insulin was large for a child 3 years of age, especially since only a small amount of sugar, in the form of orange juice, was given. The administration of dextrose by rectum or intravenously might have averted this danger. The value of laboratory tests in guiding the treatment of coma is evident. Frequent tests of the urine should always be made, and tests of the blood when possible. The danger of hypoglycemia can be avoided by careful management.

Fear of hypoglycemia should not prevent any one from benefiting from insulin when it is needed. To deny insulin to a patient in danger of diabetic coma is inexcusable. The occurrence of hypoglycemic symptoms caused considerable alarm when insulin was first introduced. Now it is recognized that the ordinary insulin reaction is not serious, although it may be unpleasant. It can be quickly checked by the ingestion of sugar or other food. Only when large doses of insulin are given without food is there any danger, and serious accidents have been rare.

CONCLUSIONS

It is apparent that in all the cases under consideration, with two or possibly three exceptions, death occurred from preventable causes: failure to receive insulin, improper use of insulin along with carelessness in dieting, dependence on defective Benedict's solution, and inexpert medical supervision. The needlessness of most deaths from coma was emphasized by Joslin even before the introduction of insulin. Now that insulin is available to insure control of diabetes, however severe, deaths from coma should not occur.

The lessons that have been learned from a study of these fatalities may be summarized in the following rules:

1. Provide a diet which will maintain the patient in a good nutritional condition and with which the patient will be satisfied.

11. Allan, F. N., and Constam, G. R.: Insulin Resistance in a Case of Bronze Diabetes, M. Clin. North America **12**: 1677-1687, 1929.

2. Train the patient to maintain a balance between the dosage of insulin and the diet, increasing the dosage of insulin on the appearance of glycosuria and decreasing the dosage on the occurrence of symptoms of hypoglycemia.

3. Test the urine for sugar every morning and evening so that a fall in tolerance can be recognized and can be combated by an increase in dosage of insulin without delay.

4. Check each new supply of Benedict's qualitative solution, by testing with corn syrup or honey. A solution that does not change color on heating with dextrose is not dependable.

5. Use special precautions in the management of diabetes during sickness, by making tests of the urine at least four times daily, and by increasing the dosage of insulin sufficiently to check glycosuria.

6. If acidosis develops, use insulin in moderate doses, frequently repeated, making a test of the urine or the blood before each injection.

7. Consider any case of juvenile diabetes as potentially severe, and institute careful dietary management even when glycosuria and hyperglycemia disappear promptly at the commencement of the treatment. It is usually desirable to use insulin in cases of diabetes in children.

8. Insist on continuous supervision.

ABSTRACT OF DISCUSSION

DR. BLAIR HOLCOMB, Portland, Ore.: Our experience is quite similar. Among our seventy-five cases of diabetes in children there have been eight deaths. One death was due to rupture of multiesophageal ulcers, one to acute pancreatitis and one to hypoglycemia, although no definite proof was furnished; the patient was not seen by us previous to death. Four patients died in diabetic coma. It has been emphasized by Joslin that diabetic coma in children is needless and that if we instruct our patients or their parents properly, we will insure against the occurrence of death from diabetic coma. It has seemed to me for a long time that if we can be sure that every diabetic patient, or the mother who is responsible for the care of a diabetic child, is properly and thoroughly instructed and can satisfy ourselves that she is thoroughly capable of meeting all emergencies, there will be fewer diabetic comas. One particular instance that is fresh in my mind comes up. We had under our care for six years a boy who had severe diabetes but who had been under very good control and was sugar-free. He reached the age when he felt that he could leave Portland, go South and start his life's work. He took the boat from Portland, became violently seasick, of course was unable to eat and forgot to take any insulin. He arrived at San Francisco and died within four hours. This boy had been trained that if he ate no food because of lack of appetite, he was to take half the ordinary amount of insulin. I think this one particular fact must be emphasized: that when the appetite is gone because of infection, under most circumstances half the ordinary dose of insulin must be taken. If we control this one factor, we will see fewer deaths from diabetic coma.

DR. LESTER J. PALMER, Seattle: Drs. Allan and Wilder seem to feel that failure of treatment means death of the patient. Ultimately this is undoubtedly true, i. e., that failure in treatment hastens a lethal outcome. It seems to me that failure in treatment constitutes an inability to maintain the diabetes under good control. All of us who have seen diabetic children in the past ten years have been impressed, I feel quite certain, by the ease with which the diabetes is controlled if it comes under observation early and the cooperation on the part of the patient is what it should be. It is frequently and in fact usually possible to increase the diet and reduce the insulin dosage, indicating an increased insulin-producing power in the pancreas or a tendency for the diabetes to become milder. If, however, because of a break or a rupture in the continuity of good control the blood sugar is permitted to be high and the urine to contain sugar for a period of time, and later a second effort is made to bring the disease under good control, it is found that the tolerance has been lowered to a great extent and that more insulin is required to handle the same or even a lessened amount of food. At this second observation the tendency for the diabetes to become milder, or for the pancreas to improve its insulin-producing power is not nearly the same as it was in the beginning of the treatment. Therefore, it seems to me that death of the diabetic patient should be considered a complete failure and that those patients who are not kept under good control are partial failures. The reason for this, it seems to me, is failure to make an early diagnosis and to give the patient proper education in the beginning, together with the failure of the physician to keep in close contact with the progress which the child is making. Therefore, frequent examinations of the urine in children when they are well and especially following the infectious illnesses, early treatment of glycosuria, proper education in the beginning, and close supervision for a long period of time will reduce failure of diabetic treatment to a minimum.

DR. ALBERT H. ROWE, Oakland, Calif.: My observations in a series of nearly fifty cases of juvenile diabetes during the past six years since the use of insulin, as well as in several cases during the preceding seven years, have emphasized certain points that I think will be of interest. The authors, I feel, have covered the subject very thoroughly and if physicians who have the opportunity to treat diabetes in children will adhere to their suggestions, the juvenile diabetic will be much safer than he has been at times in the past. One point I should like to emphasize is that many parents seem to feel that they have no responsibility in protecting the child from death by a strict adherence to the diet and insulin therapy prescribed by the diabetic specialist. Parents must appreciate their moral responsibility to the child. They have no right to relax in the treatment of diabetes and thus doom the little patient to death. The decision as to whether or not the treatment is to be continued or is worth while can be made with justice only by the child after it has come at least into adolescence or better into adult life. I agree with Drs. Allan and Wilder in placing practically all children on insulin therapy, even though the diabetes is mild and it is possible for the time being to control the disease by dietetic therapy alone. Even though in such mild cases the weight is maintained or increased without insulin, a slight accident, infection or gastro-intestinal upset always threatens to reduce tolerance, and acidosis and even coma may suddenly intervene. If the child is on insulin therapy and the parent knows how to increase insulin according to the urine tests, such serious results can be prevented. It is difficult to keep the blood sugar as well controlled in the juvenile diabetic as in the adult patient. The therapy must be regulated, however, with the aid of blood sugar determinations, especially when a question of mild insulin reactions arise. In two cases during the last two years a low renal threshold has demanded a regulation of therapy by rather frequent blood sugar studies and has necessitated the allowance of a slight glycosuria to prevent frequent insulin reactions. Even without such low thresholds, I agree with Joslin that it is nearly impossible to keep the average diabetic child sugar free throughout the entire twenty-four hours. My treatment of coma in children has been successful in nearly all cases, except in the presence of severe infections. I would suggest three reasons for poor results in treatment: insufficient education of the parent in regard to diet, insulin regulation and the control of complications; poor cooperation of the child, especially in the eating of extra food, and, most important, the lack of a frequent follow-up of the patient by the physician who has assumed the responsibility of the protection and treatment of the juvenile diabetic.

DR. F. N. ALLAN, Rochester, Minn.: The points which have been mentioned by those who have taken part in the discussion are of great importance. The need for insulin during sickness, even when food is not taken, is something every one should know. It is well to advise patients using insulin never to omit it without medical advice even when unable to eat, unless the urine is sugar-free. If the urine is sugar-free, there may be no risk in omitting insulin entirely; but when the urine contains sugar, omission of insulin may lead to dangerous results. The education of diabetic patients and those who are

concerned with their care is of the greatest importance. The education at the beginning of treatment must be followed by supervision of the management of the child throughout its life. The physician must always keep in close touch with the patient and the parents to make sure that the instructions are thoroughly understood and that the treatment is carried out according to the plan which has been given.

OPERATION ON THE SINGLE KIDNEY, ESPECIALLY FOR STONE*

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How difficult it is for the family physician to advise his patients as to a surgical procedure with which he is not himself familiar. Thus, for example, one bemoans the months wasted by the patient with carcinoma of the bladder whose physician has permitted him to rejoice at the spontaneous disappearance of his initial hematuria. This communication is meant as an introduction to such a topic.

When a patient has but a single kidney, whether this is due to congenital deformity, to disease or to the surgical removal of its fellow, the patient himself is likely to live in a state of constant apprehension. One of my patients on whom a nephrectomy was done has been a nervous wreck ever since the operation. Her chief joy is an annual voyage to some one or other of the great centers of medical diagnosis for the satisfaction of being reassured once again that her remaining kidney is normal.

The medical profession at large shares this apprehension. Indeed, life insurance statistics show that the expectation of life for the person who has lost one kidney is less than for him who retains both. But medical statistics are notoriously untrue in the saddest sense. The one or two percenter who lies quietly in his little pine box cannot rejoice with the ninety and nine who are saved.

My incentive to the study of the effects of surgery on the solitary kidney was the relatively successful issue to operation in three such cases during the past winter. For the purpose of balancing this success I looked over my old records for similar cases. To my surprise, the records of my twelve years' service at Bellevue Hospital did not reveal any instance of operation on a solitary kidney except for one patient who died of empyema and sepsis subsequent to a futile attempt at drainage of a fused kidney and one successful intervention on a horseshoe kidney.

But renal fusion, notably the horseshoe kidney, should be excluded. As a matter of fact, an experience with operating on some five or six patients with horseshoe kidney has satisfied me that this surgery does not present any habitual difficulties except in the removal of stone by pyelotomy. Here the short vascular pedicle greatly cramps the operative field.

There is also no purpose in including operations on other parts of the urinary tract. I have three patients living and well today, the ureter from whose sole remaining kidney was implanted into the abdominal wall more than two years ago. But the prospects of such cases can be estimated before operation with a fair degree of precision which is not always possible when the parenchyma of the kidney itself is to be attacked.

This study has therefore been confined to six patients whose one kidney—in one of them a congenitally solitary kidney—has been operated on, in five instances for stone, in one instance for acute suppuration. One patient was operated on by decapsulation for acute suppurative nephritis, five others for stone, and one pyelotomy and four pyelonephrotomies were done. None of the stones were large. In one case I obtained one small stone by pyelotomy whereas the roentgenogram had shown two. The kidney was quite hydronephrotic and relatively little infected. I therefore injected through the pyelotomy wound enough solution to distend the kidney comfortably, stopped up the wound with my finger, shook the kidney as one would a dice box, and, when I let go of the pyelotomy wound, seven more little stones dropped out.

All the patients have survived, the survivals running from a few months to thirteen years. Roentgenograms have been negative for stone after operation. One of these patients began to pass stone between five and ten years after his last operation. I have operated on this single kidney of his three times. Another patient has been operated on twice.

The convalescence of these patients from operation has not differed materially from that of similar patients with two kidneys. The woman with acute suppurative nephritis was so sick that when she recovered from her decapsulation she had lost her recollection of the whole day preceding the operation. Yet, immediately after decapsulation, her temperature became normal and her mind clear.

Of the stone cases, in four operation was done for anuria and in one for persistent pain. This illustrates how far my unwillingness to operate on the single kidney has been carried. These patients were just as operable and better risks before they had anuria. When operated on the anuria had lasted, respectively, one, two, four and six days. One patient had had a previous anuria relieved by a ureteral catheter. I drained the kidney by catheter first because the blood nitrogen had risen from normal to 112 mg. in thirty-six hours. Two days later the stone was removed and the following day the blood nitrogen had fallen to 61 mg.

Another patient refused my appeals to operate and had a blood pressure of 200 systolic and 110 diastolic more or less for a year. Anuria brought him to terms. I removed the stones from the hydronephrotic kidney, and the blood pressure two days after operation was 116 systolic and 84 diastolic, and three weeks after operation, 128 systolic and 76 diastolic.

It takes courage of a vicarious sort to operate on the sole remaining kidney, yet in operating I have taken only two special precautions: I have left the pyelotomy incision unsutured; I have decapsulated the kidney, both of these precautions in the hope of minimizing postoperative renal congestion. There has been no alarming failure of kidney function after operation. I do not know whether this is attributable to these precautions or not. I have, of course, tried to spare the kidney parenchyma as much as possible. I have tried to flush stones out of the kidney pelvis. In one case I was successful in pushing a small stone down from a calix where I could not reach it by plunging a straight needle through the cortex and extracting the stone balanced between that needle and the end of my finger in the pelvis.

All but one of the patients with stone was in quite vigorous general health at the time of operation. This

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one was a frail, anemic youth who was kept constantly below par by pyelonephritis and secondary anemia. He has had a prolonged and stormy convalescence, during which I have had to give up the hope that the intrarenal pelvis will deliver urine into the ureter. Three months after the removal of the stone I was forced to perform a nephrostomy for permanent drainage. He will thus remain crippled. The others all think themselves well and all have reduction of kidney function sufficient, I hope, to guarantee them against recurrence of primary stone.

It is astonishing that these patients stand operation almost as well as patients with two kidneys. I am inclined to attribute this to the fact that the kidneys are handled gently and that, being already infected, the immediate postoperative reaction is less severe than when one operates on a truly normal kidney parenchyma.

REPORT OF CASES

CASE 1.—A woman, aged 23, in July, 1904, when her first child was born, early in her pregnancy had a temperature of 101, pain in the right loin, and pus, bacteria, albumin and casts in the urine. A diagnosis of pyelonephritis was made. The condition was controlled by methenamine. Thereafter pain in the loin continued with slight fever and occasional slight chills.

In November, 1905, the patient had sharp pain on the right side requiring a hypodermic of morphine. This pain recurred, December 22, and continued in spite of morphine, while the urine became muddy with pus and blood, and the temperature rose to 104 F.

On the 24th the temperature was down to 102 and the pain was much less. The left loin was moderately tender but did not contain any palpable tumor. The right loin was exquisitely sensitive, with a tender mass in it, presumably a large kidney. That afternoon and evening the patient had six or seven chills. The temperature ranged from 103 to 105, and Christmas morning chills recurred and the temperature was 104. Accordingly I explored the left kidney and found it apparently normal. The right kidney was full of miliary abscesses, so I removed this.

After operation the maximum temperature was 100.6, the maximum pulse 92. January 2, 45 ounces (1,330 cc.) of urine was passed with only a few scattered pus cells in it, with a specific gravity of 1.030, urea 32 Gm. and a faint trace of albumin.

January 6, the patient aborted at three months and thereafter was well. She has been pregnant several times since and borne two children. During the first pregnancy she had a little discomfort in the left loin but nothing characteristic of renal insufficiency or acute infection, though the urine always contained a trace of albumin, a few hyaline casts and a few pus cells.

I have thought much of the left loin pain to be lumbago.

In the summer of 1908 she had to take methenamine to control fever and pain in the left loin during pregnancy. After the child was born the urine became grossly clear of pus, the trace of albumin disappeared, but culture of a catheterized specimen showed *Staphylococcus albus* and *aureus*. (At the time of the operation the infection had been with gram-negative bacilli).

Since then the patient has constantly been much overweight. Dec. 12, 1926, following a depletion course which had reduced her weight from 213 to 160 pounds (97 to 73 Kg.), severe pain and tenderness in the left loin returned, accompanied by severe headache and a slight fever. The left ureter was catheterized and urine from the kidney pelvis found to contain many pus cells and gram-negative bacilli and to have a concentration of 8 Gm. of urea. The white blood cells numbered 10,000. The urine had a specific gravity of 1.010, with marked trace of albumin, and pus and bacilli.

December 19 (the fifth day), the patient became delirious, her temperature reaching 102 for the first time. Intravenous phenolsulphonphthalein was excreted during four half hours in fractions of 19, 10, 8 and 6.5 per cent. The loin was constantly more tender. I was so convinced that there was a perinephric abscess that I was able to persuade the medical consultant that he felt one. December 20, under gas-oxygen, the left loin was explored through a small incision. I did not see the kidney, but, pushing my finger down to touch it, I found the fibrous capsule so friable that it split and with two fingers I was readily able to perform a decapsulation, feeling a large lump in the middle of the cortex which suggested a carbuncle. A cigaret drain was inserted.

After operation the headache was immediately relieved. The delirium disappeared when the patient came out of the anesthetic. The maximum temperature after operation was 100. Convalescence was uneventful.

In April, 1929, she remains well. Four urinalyses done since operation all show specific gravities above 1.020. For three months after operation there were a good many casts and dense albumin. Lately there have not been any casts; either no albumin or a faint trace is present, and there are a few leukocytes. The urine looks grossly clear most of the time. The systolic blood pressure ranges from 150 to 180.

CASE 2.—A man, aged 53, in good general condition, had a nephrectomy for calculous pyonephrosis in 1904. He began to pass stone again in 1909. In 1912 he had chills and fever and passed stone. A roentgenogram showed a stone over the rib, the existence of which was denied at two hospitals in which he took refuge during a sudden severe renal colic. I first saw him, Sept. 30, 1912, at the close of an anuria which had lasted for twenty-four hours. He then proceeded to pass from 25 to 50 cc. a day with a concentration of 5 Gm. to the liter and a phenolsulphonphthalein output of 31 per cent in the first hour and 15 per cent in the second after intramuscular injection. The left kidney was palpable and tender. The urine contained a trace of albumin and was foul smelling and full of pus and bacteria. There was residual bladder urine of 30 cc.

October 8, a left pyelotomy was done. The kidney was much dilated but the pelvis was practically normal. The ureter was quite normal. The kidney was lobulated and purple like a mulberry. Subcapsular liberation was done as there were many dense old adhesions. With the finger in the pelvis two small stones were found in the middle calix which were pushed through the parenchyma. A tube was tied in the parenchyma. There was no suture to the pelvis. A second tube was tied alongside the kidney. Operation was quick and easy throughout.

After operation, in spite of the wide open kidney pelvis, the patient urinated at least 50 cc. every day. The tube was taken out of the kidney on the fourth day and out of the loin on the seventh day. The fistula was closed on the twelfth day. Two months later the systolic blood pressure was 145; the phenolsulphonphthalein output was 24 per cent in the first hour. The weight was 160 pounds (73 Kg.), a loss of 5 pounds (2.3 Kg.). There was considerable nocturnal polyuria. The patient has apparently been well since I last heard from him in September, 1922, as he undertook to beat the bank at Monte Carlo.

CASE 3.—A vigorous laborer, aged 26, sat for two hours on a board covered with ice, in February, 1916. Within a few hours thereafter he felt a severe pain in the left loin and the following day he was not able to urinate. A physician passed a catheter but did not obtain any urine from the bladder. Meanwhile the pain having disappeared, the patient felt well and for six days did not consult a physician, though during that time he had not passed a single drop of urine. His friends then brought him to St. Vincent's Hospital. He was mentally dull; the superficial capillaries were congested; the intestines were distended; the systolic blood pressure was 170; the temperature was normal; the left loin was slightly tender. Chemical examination of the blood was not made. A roentgenogram showed a large left kidney but no stone. Cystoscopy revealed a dilatation of the bladder veins and an empty bladder. The catheter could be pushed 30 cm. up the left ureter but did not draw any urine. A filiform bougie could enter the right ureter only 5 cm.

I proposed a bilateral simultaneous pyelotomy. I opened the right loin and found no kidney. The left loin contained a large congested kidney. I incised its cortex and drained the pelvis, liberating about 50 cc. of urine. I did not discover the cause of the obstruction.

After two days of semiconsciousness, he recovered. For three weeks all the urine was passed from the loin. Streptococci were obtained from the bladder by irrigation. A second cystoscopy did not reveal anything new. Then the patient began to urinate. The loin tube was removed. The sinus closed in a week. The temperature went to 104; the loin was reopened, and the tube replaced.

In July, 1916, the patient returned to the hospital. I reopened the loin, found the kidney very adherent, mobilized its lower pole by subcapsular dissection, and discovered that the pelvis and upper ureter were fixed in a dense scar with a narrow tight stricture at the ureteropelvic junction. I opened the ureter just below the point of stricture and found that not even a probe would pass through it. I then carefully split the stricture open from ureter to kidney pelvis and made a second short incision still farther down the ureter. Through this I introduced a 20 F. urethral catheter upward over the region where the stricture had been and into the kidney pelvis above, thus splinting the stricture region wide open (in much the same fashion that stricture of the common bile duct is splinted, but with the exception that in this case the funnel end of the catheter was led out from the second or lower ureteral incision through the loin wound).

On the third day this tube was removed. Thereafter most of the urine came from the loin, but four days later a small phosphatic stone was passed from the urethra. The loin then healed and the convalescence thereafter was uneventful.

In July, 1917, fever and pain in the left loin recurred. Each time the irregular fever rose, the pain in the loin increased, and there was anuria for varying periods, the longest being twenty-four hours. Three shadows were seen in the region of the left kidney, two of them believed to be stones. I opened the loin for the third time and found the kidney so firmly fixed that I could not dislocate it. I opened the old nephrotomy wound and found but one phosphatic stone stuck in the orifice of the ureter, in which no stricture could be identified. The stone was removed. The convalescence was uneventful, ureteral drainage being established after a single passage of a ureteral catheter.

I last saw the patient in February, 1929, looking and feeling perfectly well. The urine was slightly purulent and he stated that he passed small bits of phosphatic grit at long intervals, but he refused any examination.

CASE 4.—An apprehensive but healthy man, aged 35, had a large left pyonephrotic kidney filled by a branching calculus removed, May 27, 1927. The kidney was adherent, the operation difficult. The peritoneum was torn. Convalescence was slow.

Two shadows were seen on the right side which suggested gallstones. The patient had not had any pain on the right side. He refused any further examination in reference to these stones. The convalescence was slow. Even a month after operation the phenolsulphonphthalein excretion was only 8 per cent in the first half hour after intravenous injection, and 22 per cent in the second half hour. (Before operation it had been from 3 to 15 per cent.) The blood nitrogen four days after operation was 64, and creatinine 2.5. A week later the blood was normal.

During the next six months the patient suffered a good deal from indigestion, headache and dizziness. The systolic blood pressure remained at all times at or about 200, with a diastolic pressure as high as 110.

In November, 1928, he had right renal colic requiring morphine. There was complete anuria thereafter for four days, not a drop of urine being passed. During this time he did not eat any food, and on the fourth day the blood pressure was 160 systolic and 110 diastolic. The pulse was 96; the temperature was normal; the blood nitrogen was 150, and creatinine 3.5. The right kidney was just palpable and slightly tender; there was no abdominal distention. The patient looked well. A roentgenogram showed a stone 3 cm. in diameter in the right kidney pelvis and three small stones in the lower pole.

November 15, the kidney was exposed. It was distended and somewhat edematous. The stone, which at first was jammed in the upper end of the ureter, fell back into the distended kidney pelvis. The lower pole of the kidney was freed and the kidney lifted up a bit, whereupon the stone floated back into the ureteral orifice.

A posterior pyelotomy was done. In the gush of urine that followed the stone out, several birdseed-like stones followed, but exploration with the finger did not reveal any more stones.

The kidney pelvis was therefore moderately distended with saline solution and the small pelvic wound compressed as the syringe was withdrawn; the distended kidney was once again well shaken, and when the pressure on the pelvic wound was released, seven more stones were obtained. Repetition of this maneuver did not expel any more stones. During this time the ureter had been compressed with an Allis clamp. This was removed. A vertebrated probe and a waxed bulb were passed into the bladder without revealing any ureteral stone. The kidney pelvis was not sutured. Tube drainage was done. Except for a marked anemia lasting two months, convalescence was uneventful. The blood pressure dropped as follows:

Before anuria, 200/110 ±.
After four days' anuria, 166/110.
Two days after operation, 116/84.
Eight days after operation, 118/80.
Twenty-two days after operation, 128/76.

The convalescence was entirely uneventful. Since operation the patient has remained well (last report in May, 1929).

CASE 5.—A lean, vigorous man, aged 42, from whom, Oct. 27, 1925, I removed the left pyonephrotic kidney inhabited by a variety of phosphatic calculi which had been giving him renal colics for eleven years, thereafter remained well until September, 1928, when, without any colic, he had a complete anuria. At the end of thirty-eight hours the right ureter was catheterized and a gush of purulent urine was obtained; the catheter was left in place for four days. The roentgenogram revealed a bean-shaped stone in the right kidney region. The patient refused operation, and on Feb. 3, 1929, called on me for the relief of a second total anuria, which had lasted for thirty-six hours. During the first ten hours, the pain in the right loin was severe. At the end of twenty hours the blood nitrogen was 69 and the creatinine 2.2. Sixteen hours later the nitrogen was 112 and the creatinine 3.2. There were no subjective symptoms of disease. The ureteral catheter obtained 30 cc. in five minutes, striking water at 28 cm. During the next hour 100 cc. was obtained. The catheter was tied in for two days.

The kidney was then explored. It was considerably hypertrophied and the pelvis was surrounded by dense adherent fat. A posterior pyelotomy revealed an irregular smooth whitish oxalate stone 1 by 1 by 2 cm., which was removed by forceps. As the kidney seemed quite tense within its capsule, decapsulation was performed by making a small puncture over the convex border and through this sweeping a probe around under the capsule until it was freed almost down to the hilum. The capsule was thus freed without splitting it. The pyelotomy incision was then closed by plain catgut suture. Tube drainage was done.

The patient's blood pressure was not materially influenced by his condition. Before the second operation it was 112 systolic and 58 diastolic. Three months after the second operation the patient felt entirely well; blood pressure was 112 systolic and 68 diastolic. At this time urinalysis was negative for pus as well as albumin, and the specific gravity was 1.018.

The blood nitrogen and creatinine were, respectively:
After twelve hours of anuria, 69 and 2.2.
After thirty-six hours of anuria, 112 and 3.2.
The day after operation, 61 and 1.9.
The patient was healed and home on the eighteenth day.

CASE 6.—Dec. 2, 1925, I removed the right kidney of a frail, anemic man, aged 24. It contained a small stone in the pelvis which had given attacks of pain, nausea and vomiting for a year. The stone was bean-shaped. The kidney was removed because the pelvis was the smallest I had ever encountered, and, by the time I had reached and removed the stone from the lower calix through a pyonephrotic wound, the venous bleeding was so sharp that I feared to leave the kidney in.

From that time on the patient never was well. The red blood cells were about 4,000,000; the hemoglobin from 70 to 85, and the white blood cells numbered about 10,000. The urine was always purulent; its specific gravity varied from 1.010

to 1.020; urine cultures showed *Staphylococcus aureus*. The phenolsulphonphthalein output in the first half hour after intravenous injection was 38 per cent; in the second half hour, 11 per cent. The blood pressure was 130 systolic and 84 diastolic.

In October, 1926, the patient had fever and pain in the left loin. A roentgenogram showed a small stone in the left kidney.

In November, 1928, the kidney stone had grown to be about 2 cm. in its longest diameter. It remained in the lower pole. The urine was grossly clear except for a few shreds; it contained pus and a trace of albumin.

Jan. 15, 1929, the left kidney was exposed. The pyelogram had shown it to have an intrarenal pelvis and the problem was approximately the same as it had been on the opposite side. The kidney was not enlarged or adherent. The pelvis was so small that it actually was never seen, but the ureter was slit up toward the lower pole and the incision carried right into this in the midline until the little finger could enter the kidney pelvis, where the stone was found to have departed into the upper calix.

As it seemed worth while to avoid trauma to the kidney parenchyma, every effort was made to hook the stone down from the upper pelvis; but no instrument could get a grip on it. A heavy straight needle was therefore plunged through the upper pole, and the stone, balanced between this and the tip of the little finger in the kidney pelvis, was readily extracted. The parenchyma did not bleed and was therefore not sutured. There was no suture to the kidney pelvis.

Postoperative convalescence was both tedious and stormy. The loin wound remained open. There were periods of anuria of from twelve to twenty-four hours' duration from time to time and, since the passage of the ureteral catheter did not relieve this anuria, it was erroneously attributed to suppression of urine. By the end of the six weeks the kidney was palpable in the loin and it became apparent that the anuria was due to retention. The ureter was catheterized four times with varying success. Sometimes the patient would pass as much as 20 or 30 ounces in twenty-four hours from the urethra but the next day the urine would all be coming from the loin again. A roentgenogram was negative for stone two months after operation. The chemical condition of the blood remained normal except during periods of anuria, but the urine from the loin was very dilute. Indigo carmine injected into the loin appeared in the ureteral catheter and vice versa. Injection of the sinus and of the ureter with visible fluids did not show any penetration of these into the kidney pelvis.

April 23, the ureter was catheterized and the left iliac fossa explored. The ureter was discovered as it crossed the iliac vessels and followed to the kidney pelvis, the sinus having been incidentally opened. But here the kidney was so fixed and the scar so dense that it seemed unwise to risk blind probing in the region of the hilum. The ureter was opened and, as efforts were being made to insinuate a probe into the kidney pelvis, the ureter was torn free from the kidney. A nephrostomy was therefore done into the distended lower pole of the kidney from which a good deal of dilute purulent urine was obtained.

The patient's condition was desperate after operation for three days, the urine output progressively diminishing. But thereafter the urine increased up to 100 ounces and though the patient scarcely took even water for five days and had hiccup for two more, the convalescence thereafter was uneventful. He left the hospital, June 17.

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ABSTRACT OF DISCUSSION

DR. WALTMAN WALTERS, Rochester, Minn.: The most significant principle involved in operations on a solitary kidney and its ureter is that if a stone exists and operation is indicated, it should be done early before infection and decreasing renal function have resulted in increasing the operative risk. Following pyeliolithotomy, especially if combined with nephrolithotomy, the incision in the pelvis of the kidney has been left open, permitting external as well as ureteral drainage. Fluoroscopic examination of the kidney or exposure of films in the operating room following the removal of renal calculi should be done in all cases of renal lithiasis. This is particularly important if the patient has only a single kidney because of the necessity of removing all fragments of stone and the greater difficulties of secondary operations on the kidney for stone. A solitary kidney or ureter has been operated on in forty-three cases at the Mayo Clinic. Thirty-five of these operations were for stone; in eight cases ureterolithotomy was performed. The operative mortality in the entire group was 14 per cent, whereas the eight operations on the ureter were done without mortality. The patients who failed to recover without exception had varying degrees of renal insufficiency and infection and died in uremia. I wish to emphasize again the necessity of early operation for the removal of stones in a solitary kidney and ureter before renal infection and decreasing function increase the risk of the operation, and to this end reexamination at frequent intervals, especially if urinary lithiasis has been a complication.

DR. ROBERT E. CUMMING, Detroit: Relative to Dr. Keyes' paper, I wish to narrate briefly the history of three brothers with renal calculi, and report successful nephrolithotomy for a large recurring calculus in a remaining or single kidney. The eldest brother with unilateral calculi had a right nephrectomy performed five years ago; the second brother was my patient in the army ten years ago, at which time I performed a right nephrectomy for calculous pyonephrosis. The youngest brother with bilateral calculi was operated on four years ago, by another surgeon, having first a right nephrectomy and some months later a left nephrotomy. He states that twenty calculi were removed from the left kidney. At the time of this recent second left nephrotomy I had an artist come to the operating room and sketch the stone as I reassembled it immediately after removal, with relation particularly to the pelvis. In two places we could see distinct remains of previous calculi in the new mass of stone. They were clearly of a different chemical nature. The stone did not extend down into the pelvis, a fact which I think helped in preservation of function and drainage. The patient recovered with healing of the sinus, and has gained 20 or 30 pounds (9 or 13.6 Kg.). I was interested in hearing Dr. Keyes say that he leaves the kidney incision wide open, for it seems to me this is the only way urine can be secreted and drained away properly in conjunction with necessary hemostasis. I believe this patient would have been a better risk had the right kidney not been removed, in the presence of bilateral calculi; in no instance of bilateral calculi for the past ten years have I performed a nephrectomy and I have not had a single death; in several instances I have lost the patient following nephrectomy for unilateral disease. With bilateral calculi I think we should practice conservatism, a note which has been sounded in this section many times.

DR. BRANSFORD LEWIS, St. Louis: I had an interesting case that I have mentioned before. The patient was a stone producer, with stones in both kidneys, and after large stones had been removed from the right kidney he later developed small stones in the left kidney pelvis, and that induced me to develop the method of succussion removal by cystoscopic measures, described two or three years ago. From that patient we have taken more than 200 stones by the cystoscopic method. Finally he got along so well that he took matters into his own hands and did not come back for nearly a year, and then we found that the stones not only had accumulated but had become so large that we could no longer remove them by means of the succussion method. He had to have an open operation. A month or so later bleeding started and my associate, Dr. Carroll, to save his life had to remove the kidney for hemorrhage. Then he got along fairly well with the one kidney and did not return again for about a year. Then he had stones in the right kidney which were so large we could not remove them by the succussion method. He had only the one kidney, with lowered function and large stones. He had not yet learned the lesson of frequent reporting. With this history and the recurring infection we had to operate and remove as many stones as possible. They could not all be removed but we took out all we could, gave drainage and left the wound open, and later under local anesthesia we got some more stones out. The patient now is up and about, is cheerful, but still has several stones in his one kidney. Later we may have to operate again. I realize the fact that the presence either of bilateral stone formation or of stone in a single kidney should not prevent

operation if the indications are there for such a procedure. In the cases of "silent stone," judgment should be used as to whether operation should be undertaken.

DR. E. L. KEYES, New York: I should like to make one point as to the technic in decapsulation. I have been criticized on other occasions for rather favoring routine decapsulation, because it is difficult to blast the kidney out if it is necessary to operate again. Having had occasion to verify this, I hit on a device that may be of value. In order to decapsulate and minimize the resultant adhesions, I have made a small puncture as though I were going to begin a decapsulation, and then instead of splitting the capsule I take a probe and skid it around and in that way the capsule becomes loose, the sympathetic nerves are cut and tension is relieved, which I think important. The only other point is a psychologic one. I. reported six cases with brilliant success in which operation had been performed on one kidney, and Dr. Collings reports one death in a patient of mine with two kidneys on whom I had operated.

UTERINE FIBROMYOMA

REVIEW OF SIX HUNDRED AND EIGHTY-THREE CASES *

FRANK W. LYNCH, M.D.
SAN FRANCISCO

This paper is based on observations in 683 women with uterine fibroids treated in the University of California Hospital. Included in the compilation are all tumors larger than 1 cm. in diameter. The smaller fibroids rarely caused symptoms but are reviewed because invariably there was an associated pathologic condition that demanded treatment. The larger tumors ranged in size up to masses that completely filled the abdomen. For the purposes of this study I have considered as large any fibroid mass which, together with the uterus, was larger than a four months' pregnancy, because growths of this size are too bulky to be treated properly with radium. Thus classified, there are in this series 394 cases of large tumor and 289 cases of small ones.

AGE

The age of the patient with uterine fibroids is often an important matter in choosing a proper form of treatment for the tumors that demand attention. Surgery, radium or the roentgen ray are proper therapeutic agents. Each has known indications and contraindications, which at present are not so clearly defined, however, that they may not be altered in the future. The advocates of roentgen-ray therapy will see in table 1 that nearly one fourth of the large tumors were found in women between 45 and 50 years of age. The advocates of surgery will see that 61 per cent of the large tumors were in women younger than 44 years of age, a time when the menopause is more or less unusual; 33⅓ per cent of large tumors were in women of 39 years and less; 5 per cent of the large fibroids were in women between 20 and 29, and 2.4 per cent were in women more than 60 years of age and were growing rapidly and causing symptoms.

FAMILY HISTORY

Reports from the women's clinics in the Universities of Edinburgh, Greifswald and Tübingen indicate that fibroid tumors form approximately 8 per cent of all gynecologic conditions. If this frequency exists in the United States and if fibroids occur in from 15 to 20 per cent of women past middle age, patients should know of other female relatives who had similar tumors. My clinic is intensely interested in a family history of cancer and attempts to obtain from each patient the medical history of three generations of the family. Yet our records show that only twenty-one women knew of other members of the family who had been operated on for similar tumors: fourteen in the group of 394 with larger tumors and seven in the 289 with smaller tumors. This indicates that too much importance can be ascribed to the value of family histories in statistical reviews, and that comparatively few patients know enough of the medical history of the family to give valuable data.

PAST HISTORY

The past history of these 683 women disclosed the astonishing fact that already they had furnished a tremendous operative field for nearly all classes of surgeons. Exclusive of tonsillectomies, submucous nasal resections, mastoids, operations on the eye, rectum, feet and shoulder, and innumerable operations incident to childbearing, such as curettage for incomplete abortion, cervical and perineal repairs and cystocele operations, 281 women, or 43 per cent of those with fibroid, had also had the other operations listed in table 2. It seemed incredible that so many operations could be performed on so few individuals. The table shows that our patients had far more than their share of pelvic operations, and fewer surgical complications of other types than could be reasonably expected in 683 women of mature age, except for thyroid disease, of which they had a full quota, if it is considered, as shown by the individual records, that these patients rarely came from known "thyroid belts." Three per cent of the series had had goiter operations before entering my service. Gallbladder disease was rarely found in the women of our series; so rarely, in fact, that I am forced to wonder whether pelvic disease is as important an etiologic factor in gallbladder disease as has hitherto been considered. The table suggests that women destined to have uterine fibroids have uterine and thyroid tissue below the par of the average adult woman.

TABLE 1.—*Age Period Percentages*

Age Periods	Entire Series, 683 Cases	Small Tumors, 289 Cases	Large Tumors, 394 Cases
20–29 years.....	6.2	8.0	4.8
30–39 years.....	30.3	32.5	28.6
40–49 years.....	46.9	40.8	....
40–44 years.....	....	....	27.2
45–49 years.....	....	....	24.3
50–59 years.....	14.6	15.9	12.7
60–79 years.....	2.2	2.8	2.4

SYMPTOMS OF FIBROIDS

The study of the symptoms of fibroids is limited to 376 patients with large fibroids, as here defined, in whom the histories, operation notes, pathologic records and follow-up reports met all the demands of this inquiry. Much to my surprise, I found that hemorrhage was the cardinal symptom in only one third of the patients, pain or pressure or both was the complaint in another third, while the remaining third had no symptoms distinctly referable to the tumor (8.7 per cent with no symptoms, 9.6 per cent with only vague symptoms, and 14.6 per cent complaining only of the presence of the tumor). Several of these dominant symptoms often existed in the same individual.

* From the Department of Obstetrics and Gynecology, University of California Medical School.
* Read before the Section on Obstetrics, Gynecology and Abdominal Surgery at the Eightieth Annual Session of the American Medical Association, Portland, Ore., July 11, 1929.

Bleeding naturally was the most alarming symptom. As a result of hemorrhage or degeneration of the tumor, the hemoglobin was between 17 and 29 in twelve cases, and under 50 in sixty-one of the 376 cases under discussion. Repeated transfusion was often necessary before the patient was adjudged ready for operation. The type of bleeding ranged from greatly prolonged periods and intermenstrual bleeding to actual hemorrhage.

As I reviewed these cases singly, I gradually developed the impression that with tumors of the same size menstrual disturbances were far more common when the patient was in the forties than when in the early thirties or the middle fifties. While the tables do not permit proof of this point, the view remains plausible, because women in the premenopausal period become so sensitized to uterine bleeding that they bleed from stimuli which at other ages might be subliminal.

TABLE 2.—*Former Operative History of Six Hundred And Eighty-Three Patients with Fibroids*

Appendicitis	26	Vaginal cysts	3
Goiter	21	Ovarian tumors	9
Gallstones	4	Curettage (from 1 to 6 times)	73
Gastro-enterostomy	1	Myomectomy	34
Hernias	8	Cervical polyps	6
Breast tumors	5	X-ray	13
Kidney	5	Radium	11
Uterine suspension	35	Excision of cervical glands	1
Salpingo-oophorectomy	26		

Certain it is that hemorrhage was not confined to the women with submucous fibroids, since only 59 per cent of all who complained of the cardinal symptom of bleeding had submucous fibroids. Hemorrhage, however, was a complaint in 85 per cent of all submucous growths. The remaining 15 per cent of patients with submucous tumor complained chiefly of pain or pressure, largely because of degeneration of the tumor. The most marked type of hemorrhage often attended the smaller submucous growths. Hemorrhage was not a symptom in several large submucous tumors which, originally intramural, had been forced down to become a side wall of the greatly distorted cavity but had not yet become actually pedunculated when the woman came to operation. A review of the submucous fibroids in the smaller tumor series shows that pedunculation of submucous tumors causes the maximum hemorrhage.

Pain followed necrosis, red degeneration, pressure from incarceration, torsion and dysmenorrhea from the presence of the tumor, and ranged imperceptibly into an almost equally distressing group of pressure symptoms.

The groups whose only symptoms were vague and not referable to the pelvis are worthy of consideration. Quite possibly they consisted of well balanced individuals who were not sensitized to pain, and it is probable that an identical tumor in other less fortunate persons might have occasioned definite and local symptoms instead of the reactions that remained subliminal. Yet the fact remains that 23.3 per cent of all the women with large fibroids had no local symptoms.

The patients complaining only of a tumor are closely allied to those with "vague symptoms." In most instances, they had already sought relief elsewhere for some comparatively trivial complaint and did not know that they had a tumor until it was demonstrated to them. It seems ridiculous that there should longer be the need of emphasizing the necessity of making a routine pelvic examination when patients are first seen or of training medical students so that they may intelligently make one. Yet in the thirty women who had large fibroids and only trivial symptoms, six had enjoyed (?) the benefit of much medical and orthopedic treatment before any one made the pelvic examination that led to a diagnosis. One patient who had a large calcified impacted tumor obtained a diagnosis only after she had had a series of gastro-intestinal tests that were indicated apparently only because her backache had not been cured by orthopedic treatment.

In dealing with many of the large tumors giving no symptoms there is no need for haste in active treatment. Any group of physicians who review the frequency and meaning of intestinal obstruction must agree that symptomless fibroids are not emergency conditions, and that surgical intervention is not warranted unless the woman is in the hands of a physician who has been trained to do a modern type of operation, cover all abraded areas with peritoneum, leave no large knots uncovered, and close without drains. Otherwise one may substitute death or invalidism and an abdomen full of intestinal adhesions for a far less threatening pathologic condition than a symptomless fibroid.

GROWTH OF TUMOR

There has been much speculation concerning the rate at which fibroids grow; yet few accurate observations have been made, probably because tumors now are usually removed shortly after they have been diagnosed.

In the 1880's, when abdominal operations were both infrequent and risky, Schorler, in Schroeder's clinic, followed the growth of eighteen fibroids over a period of several years. These fibroids grew slowly; he found that five years usually elapsed before a tumor became as large as a man's fist and that thirteen years might pass before it attained to the size of a baby's head. On the contrary, Kleinwächter, from a study of forty cases of his own, found reason to disagree, and concluded that Schorler was dealing with unusually slow growing tumors.

Many tumors in our series grew more rapidly, although some scarcely changed in size from year to year. Several fibroids grew in two years from nodules less than the size of an egg to masses much larger than a man's hand. This rapidly growing type of tumor almost invariably outstrips the blood supply and becomes the seat of well marked degeneration, often causing malaise and fever and almost invariably causing pain.

TABLE 3.—*Symptoms in Three Hundred and Seventy-Six Large Fibroids*

	Submucous	Intramural	Subperitoneal	Total
Hemorrhage	72	44	6	122
Pain	4	41	23	68
Pressure	4	33	25	62
Tumor	2	28	25	55
Vague	1	23	12	36
None	1	21	11	33
	84	190	102	376

As a group, the large tumors in this series grew rapidly. Nearly one half of all the tumors in women aged less than 20 were large tumors and apparently were destined for rapid growth from the very beginning. Slightly more than half of the 394 large tumors were found in women from 40 to 49, whereas there

were only 41 per cent of the smaller fibroids in the same decade. Conversely there were fewer women more than 50 years old with large rather than small tumors. It seemed as though the large tumors developed earlier and caused symptoms earlier.

Table 4 records seventy-five instances of large tumors in women who had known of the presence of the tumor

TABLE 4.—*Time Elapsing Between Knowledge of the Presence of Tumor and Treatment*

Less than 1 year	22 patients
1 year	15 patients
2 years	14 patients
3 years	5 patients
4 years	4 patients
5 years	3 patients
6 years	3 patients
7 years	1 patient
8 years	2 patients
9 years	2 patients
10 years	2 patients
13 years	1 patient
16 years	1 patient
Total	75 patients

for a definite time. One knew that she had had a fairly large tumor for sixteen years. When I first saw it, it filled the abdomen.

DEGENERATION

If the size of fibroids removed prior to 1890 is compared with that in our series, one finds that the tumors here reported as large really were small. This should be kept in mind during the present review of the degenerations of the tumors in my series. In 1901 and closely following, Noble and others reported large series of fibroids, many of which were really of enormous size: the tumors often presented formidable degenerations and seriously threatened life. Serious degenerations of similar extent are not often found in growths termed large tumors at the present, probably because fibroids that fill the entire abdomen are now rarely seen. The average tumor accounted large is seldom greater than a five or six months' pregnancy; these rarely contain necrotic areas. Yet in the event that they do, they cause local tenderness, pain, malaise, fever and even cachexia, any one of which symptoms may seriously complicate the clinical picture. The tumor grows rapidly with the advent of certain degenerations.

Hyaline degeneration was a constant finding and invariably symptomless in my series. Myxomatous and cystic degeneration were more likely to complicate the differential diagnosis from pregnancy than cause pain. Calcareous degenerations usually were only interesting phenomena and seldom caused symptoms unless impacted in the pelvis. Clinical symptoms usually attended the red degeneration and necrosis, often severe and with profound reactions. From a study of our patients who had marked degenerations of their tumors, it is not difficult to believe that cardiovascular nephritic changes are extremely likely to follow extensive necrotic degeneration of long standing, complications which were common in earlier times. The fact that the degenerations in our series were less pronounced than those of Noble's indicated that smaller and therefore less dangerous forms of tumor are now being dealt with. Hemorrhage rather than degeneration is the chief threat of most of the fibroids of the present day. The fact that the cardiovascular complications are seen less frequently than formerly is another way of saying the same thing.

STERILITY

The relation between fibroids, fertility and pregnancy has long been a matter of doubt. Certainly, fibroids are closely related to sterility. The question, however, is whether fibroids cause sterility or whether they grow in sterile women. Elsewhere in several reviews of the literature I have found it impossible to exclude apparent errors. Hoping to exclude many of them here, I have limited this study of sterility to women married for more than two years and have excluded from the compilation all who had induced abortions. I have listed as sterile the women whose only evidence of fertility had been spontaneous abortions. In order to reduce error further, we have confined the study to women who came to operation and in whom the abdomen was found to be free from pelvic inflammatory conditions unless otherwise stated.

I operated on 306 women with large fibroids who had been married for more than two years, 222 of whom had no evidence of pelvic inflammation. Fifty-three of the 222 had never been pregnant; ten had had only one or more spontaneous abortions, while 159 had borne children. The sterility incidence is 28.3 per cent. Four women whose only pregnancies had resulted in induced abortion were excluded from all compilations, as were three in whom it was not known whether their only pregnancy had been terminated by spontaneous or induced abortions.

There were eighty-four women with large fibroids who at operation also had tubal or ovarian inflammation. There was no means of determining whether the tumor did or did not antedate the pelvic inflammatory condition. At any rate, thirty-three women had never been pregnant, six had aborted spontaneously, and forty-five had borne children. The sterility in this series is 45 per cent. Four patients whose only pregnancies were terminated by induced abortion are not included in the compilation.

Thirty per cent of the twenty-seven patients with adenomyomas had never been pregnant.

SUBMUCOUS FIBROIDS

The view constantly gains ground that submucous fibroids develop chiefly in multiparous women and represent intramural fibroids that have been displaced from

TABLE 5.—*Incidence of Sterility in Women Married More Than Two Years*

33⅓ %	sterility in 306	women with large tumors.	Total series
28.3 %	sterility in 222	women with large tumors.	Without adnexal inflammation
45.0 %	sterility in 84	women with large tumors.	With adnexal inflammation
24.6 %	sterility in 77	women with large submucous tumors	
30.0 %	sterility in 27	women with large adenomyoma	

their former bed during the uterine involution following pregnancy, and thus become submucous tumors. This theory accounts for many but not all submucous tumors, since they may occur in virgins. Submucous fibroids may begin and continue as such or be converted from intramural growths which develop so close to the uterine cavity that they have been forced into it by uterine contractions, of which the fibroid tends to break the harmony. There were eight submucous fibroids in unmarried women in our group with large submucous tumors. Of the seventy-seven women who had submucous fibroids and who had been married a minimum of two years, 24.6 per cent were sterile. The cases are

too few to permit of deductions concerning the relative frequency of sterility in women with submucous rather than interstitial fibroids.

Yet it is within our province to comment on the undoubtedly high percentage of sterility in women with fibroids. Once more it suggests that any fibroid series includes many women who are relatively sterile because of congenital causes, that fibroids develop more often in such women than in those with more normal pelvic organs, and that congenital causes may account for sterility at least as often as the presence of the fibroid tumor.

The average age of the single and sterile women in the submucous tumor group was less than that of the fertile group in the same division, the average ages for the three groups being 37, 39 and 43 years, respectively. These data support the view that submucous tumors often develop following pregnancy, although there is no doubt that middle aged women may have borne children in the twenties and not have had the tumor develop until a later decade.

PREGNANCY AND FIBROIDS

Any one who reviews the literature on pregnancy and fibroids must be impressed with the tremendous number of hysterectomies that were performed when pregnancy coexisted with fibroids. The critical student will surmise that the pregnancy in these reports was more likely to have been unrecognized than to have been treated in a cavalier manner.

TABLE 6.—*Pregnancy and Fibroids in Thirty-Seven Cases*

Aborted spontaneously	5	Indications for cesarean section:	
Hysterectomy	7	Previous section	1
Normal labor at term	15	Elderly primiparas	4
Myomectomy during pregnancy	1	Pelvis	1
Cesarean section	9	Toxemias	3

Our results confirm such an opinion. In this series there were thirty-seven pregnant women with fibroids, and a hysterectomy was performed in seven of them. In four of these a very early pregnancy was scarcely suspected until the uterus was removed after extirpation of the tumor. One of these patients was bleeding from what was considered the fibroid until after operation, when the cause was proved to be an incomplete abortion. The other three cases consist of one in which there was bleeding from an early hydatidiform mole and a mass of fibroids undergoing well marked red degeneration, and two in which treatment was really directed to a degenerating tumor that was not adjudged suitable for myomectomy. I removed one large incarcerated fibroid by myomectomy without interrupting the pregnancy, and treated eight cases by cesarean section for various reasons, removing the tumors by myomectomy. Four operations were done in primiparous women of 40 years or more, one in a woman who had had a previous cesarean section and myomectomy, one in a woman with a deformed pelvis, and three others in primiparas with toxemias of pregnancy (not eclampsia) which were not responding to treatment. Five women aborted spontaneously, and fifteen others delivered normally at term.

INCIDENCE OF MALIGNANT TUMORS

In this series of 683 patients were thirty-two women (4.6 per cent) with malignant growths distributed as shown in table 7. Three of the six cancers of the uterine fundus were not recognized until after hysterectomy. The three patients with sarcoma died from the disease within a few months after operation. Although we could not find many of our patients who knew of fibroids in other members of their family, there were ten in the last fifty-four with fibroid who gave a definite family history of cancer. Two of these women themselves had cancer. Eight of the ten knew of cancer in their own or parents' generation.

TABLE 7.—*Malignant Disease Associated with Six Hundred and Eighty-Three Fibroids*

Carcinoma:	
Stomach	4 patients
Colon	2 patients
Appendix	1 patient
Sigmoid	1 patient
Cervix	9 patients
Fundus	6 patients
Ovary	5 patients
Thyroid	1 patient
Sarcoma:	
Uterus	2 patients
Mesentery	1 patient
Total	32 patients

GALLSTONES

The gallbladder was palpated in 481 women and stones were found in only fourteen. While the incidence of gallstones by no means expresses the true frequency of gallbladder disease, the infrequency of gallstones in this series is worthy of comment, especially when it is recalled that 314 of these women were more than 40 years of age and that 26 per cent of them also had pelvic inflammatory disease as a complication. The cases of gallstone are summarized in table 8.

DIABETES

The eight diabetic patients obtained their full share of attention while the series was developing. All had large tumors. The fibroid caused urgent symptoms in six of the eight women, yet only one of these was deemed suitable for other than surgical treatment. Panhysterectomy was performed three times with convalescent periods of fifteen, twenty-one and twenty-eight days, respectively. Two women had supravaginal hysterectomy, with a thirty-three day convalescent period in one, and death from coma in the other, six days after operation. One woman was given irradiation and died in coma four days after a three minute nitrous oxide anesthesia. The other two women had had urgent symptoms from the fibroid but had marked nephritis. They were treated by roentgen ray and obtained cessation of bleeding, but without marked reduction in the size of the tumor. These eight cases have so influenced me that I now hesitate to operate in cases of fibroid complicated by diabetes irrespective of how much the patient's condition has been improved by insulin.

TABLE 8.—*Gallstone Complications in Fourteen Cases*

12 fibroids with gallstones
2 gallstones with fibroids
Tumor and gallbladder operated on 4 cases
Gallbladder not operated on 8 cases
Gallbladder but not tumor operated on 2 cases

CARDIOVASCULAR SYSTEM

A close relationship was not found between fibroids as a class and cardiovascular degeneration. The blood pressure was above 160 in only thirty-three of the 394 patients with large tumors, in spite of the fact that many other women had definite nephritic conditions. As stated before, I believe that cardiovascular changes

are likely to follow long existent and profound necrotic degeneration in large tumors, a complication which fortunately did not occur in many of these patients. As it was, I operated on what seemed a considerable number of women with cardiovascular and kidney tissue degenerations.

TABLE 9.—*Diabetic Complications in Eight Cases*

2	Not operated on; nephritis also (x-ray)
1	Radium, died 4 days, coma
1	Supravaginal, died 6 days, coma
2	Panhysterectomy, 15 and 21 days' convalescence
1	Panhysterectomy, 28 days' convalescence
1	Supravaginal, 33 days' convalescence

HEMOGLOBIN

In my clinic operations are not performed on patients with less than 3,500,000 red blood cells and 50 per cent hemoglobin, unless there is a most compelling indication. Consequently, sixty-two of the 394 women with large tumors were given transfusions before operation. Repeated transfusions were often necessary and several patients received more than 2 quarts (liters) of blood before they were adjudged ready for operation. Women with submucous fibroids are apt to lose much of the transfused blood shortly after the transfusion. Time and patience are often needed before such patients can be put into proper condition for operation. Blood transfusions are too often considered a last resort rather than a sensible precaution to avoid the possibility of future complications. I aim to use whole blood, but feel that it makes comparatively little difference whether blood is given whole or citrated unless the patient has an infection (when whole blood alone is safe) provided it is given, first, at a proper speed; secondly, immediately after the laboratory work is carefully done, and, thirdly, after a double check on the cross-checking. The important point is to give a sufficient number of transfusions long before they are urgently needed. Nor do I consider that an individual whose blood has been brought up from 17 per cent to 50 per cent hemoglobin by transfusions has a resistance equal to that possessed by one who has 50 per cent hemoglobin and is not given a transfusion. The only broken down wound in the series of fibroids removed was in such a patient. If operation is indicated in patients with marked anemia, the work should be done gently and quickly, and the morbidity tables will appear better when reviewed in after years.

TABLE 10.—*Percentage of Hemoglobin in Patients with Large Tumors*

Below 30	12 patients
From 30 to 50	43 patients
Above 50	294 patients

TREATMENT

From personal experience with surgery and radium, and a careful follow up of the patients treated with the roentgen ray, I believe that each method has merit but that all have definite limitations. Surgery appeals to me because it permits conservation of tissues when indicated and makes possible, once and for all, the removal of the tumor, although with a definite mortality. I have found that I can safely remove fairly large tumors by myomectomy and aim to do it when treating young women. If the cervix is badly diseased, I do panhysterectomy but only if the patient is in good condition. I preserve ovarian tissue if possible in women not of menopausal age. The poorer risks that still require surgery are treated by supravaginal hysterectomy.

Both radium and the roentgen ray are useful agents in treating selected patients of menopausal age, and are of greatest worth in treating bleeding women in whom surgery is contraindicated. Yet the contraindications for using radium are many and definite and must be learned carefully by all who would use it. Each year in my clinic more myomectomies are done and a lessened field is found for radium. On the other hand, the field for the roentgen ray is growing, and only in part by the transfer to this method of treatment of many women who in the past would have been treated by radium. Yet I believe roentgen therapy is rarely indicated in women not of the menopausal age because an artificial menopause still appears to be a formidable complication. Nor do I know of cures by means of the roentgen ray without ovarian destruction.

TABLE 11.—*Mortality Following Treatment by Operation and by Radium*

	Cases	Deaths
Myomectomy	96	0
Panhysterectomy	120	2
Vaginal hysterectomy	21	0
Supravaginal	282	5
	519	7 (1.34%)
Radium	59	1
	578	8 (1.38%)

In my clinic we see many failures in cases that formerly seemed well suited for this therapy and also have seen tumors redevelop years after they had been regarded as killed, a most unfortunate condition in women then too old for operation. Careful selection of patients for a proper type of treatment remains the keystone of rational therapy. We operated on 519 patients with a mortality of 1.34 per cent, treated fifty-nine with radium with one death, and gave roentgen irradiation or no treatment in 105. The latter group are not reviewed in this report.

MORBIDITY AND MORTALITY

Proper preparation of patients for operation by preoperative rather than postoperative transfusion has reduced our mortality, although there has been plenty of serious morbidity, including 4.6 per cent of recognized thromboses, in all of which recovery eventually took place.

TABLE 12.—*Thromboses after Five Hundred and Nineteen Fibroid Operations*

Iliac veins	3	patients
Ovarian veins	1	patient
Pelvic veins	10	patients
Femoral veins	4	patients
Saphenous veins	6	patients
	24 patients, 4.62% of 519 cases	

The items concerning the eight deaths are presented in table 13.

RELATIONSHIP OF FIBROIDS AND GOITER

The patients with fibroid in this series appear to have had far more than their full share of pelvic complications and scarcely to have had their normal quota of other major surgical conditions, with the

possible exception of cancer and the undoubted exception of goiter.

The frequency of goiter in this series is striking. Of 683 women with fibroids, 106, or 15.5 per cent, presented evidence of having or having had thyroid disturbances. Eighteen women had already had thyroid operations. In the remaining eighty-eight there were three exophthalmic goiters, twenty-nine adenomas and fifty-six "simple goiters" or enlarged thyroids. When the thyroid incidence is studied in the 394 cases of large fibroids, one finds that seventy-seven cases, or 19.5 per cent, show evidence of thyroid alteration. The fact that the patients with large fibroids constitute 57 per cent of all those with fibroid and yet show 72 per cent of the thyroid changes suggests more than a casual relationship between fibroids and goiter. We are acquainted with the former residence of all women with apparent thyroid changes, only a small proportion of whom came from goiter belts. Many with goiters have lived all their lives in San Francisco, a city not in a goiter belt. Our study warrants the belief that a relationship exists between goiter and fibroids.

No one has yet presented a satisfactory theory for the causation of fibroids. The older views that their origin was intimately related to small blood vessels have not received recent confirmation. An association between disturbances of metabolism and chronic uterine hyperemia was early suggested by Theilhaber, since which time many have sought to establish a relationship between the ovary and the other ductless glands of the body.

TABLE 13.—*Deaths*

Pneumonia (autopsy)	1 patient, 7 days after operation
Influenza pneumonia (autopsy)	1 patient, 4 days after operation*
Pulmonary embolus (autopsy)	1 patient, 9 days after operation
Pulmonary embolus (autopsy)	1 patient, 6 days after operation
Pulmonary embolus (autopsy)	1 patient, 8 days after operation*
Cardiac decompensation	1 patient, 3 days after operation
Diabetic coma	1 patient, 4 days after operation
Diabetic coma	1 patient, 4 days after radium

* Panhysterectomy.

CONCLUSIONS

1. Submucous fibroids rather than degeneration of the tumor are the present-day problem of uterine fibroids.

2. An abnormally high percentage of women with uterine fibroids have pelvic structures that are below par. This is suggested by their frequent need for pelvic surgery long before the development of the fibroids.

3. Sterility in women with uterine fibroids may be due to congenital causes rather than to the presence of the tumor.

4. Goiter and fibroids often occur in the same woman, even though always resident away from goiter belts.

5. Fibroids causing symptoms may be treated successfully by one of three different methods with comparatively little mortality.

ABSTRACT OF DISCUSSION

DR. JOHN O. POLAK, Brooklyn: I wish to begin by changing Dr. Lynch's last statement to read: All fibroids need watching. Many need no treatment at all. The other points of interest in his paper, and there were many, are the questions of the incidence and the age incidence of fibroids. The large proportion came just at the time that most of the books put it at. Our frequency is somewhat higher. Another interesting point was that 23 per cent showed no local symptoms. Many years ago we had a man in Brooklyn who called our attention to the fact that fibroid rests were laid down many years before they became palpable. I have followed this man's work for a period of thirty years, and I have under my care more than 100 of the patients who he told me would develop fibroids, and they have. At that time he knew nothing of endocrinal imbalance, but there is in the etiology of fibroids an endocrinal imbalance or endocrinal maldevelopment. It is but a part of the clinical picture which was brought out so many hundred times in the cases seen years ago and followed to fibroid development. Women with hyperpituitary predominance and thyroid deficiencies make up this group. One other point I wish to call attention to is the influence of fibroids in labor. Dr. Lynch has said that there is small necessity for operative intervention, and I want to emphasize the fact that it is only the fibroid which develops in the posterior lip of the cervix that becomes incarcerated and demands operative procedure in labor. Those in the anterior wall almost invariably pull out of the pelvis and give no trouble in labor. I have many times had the chagrin of inviting friends to see an operation for fibroid complicating labor and seen the baby delivered spontaneously. Every fibroid complicating pregnancy should be watched. Few of them need to be removed during pregnancy, unless there is immense development, torsion, red degeneration or incarceration. It is in the puerperium that most of the degenerative changes take place, and it is here that if operation is necessary hysterectomy is better than myomectomy because there is apt to be poor drainage in these postpartum cases. Finally, I wish to call attention to one other point—the number of deaths which occurred from embolus. If I am not mistaken, about one-half the mortality was due to this cause, which is characteristic of operations on fibroid tumors. I have believed for a long time it was due to the progressive anemia and to the use of clamps in the technic, combating the former with transfusion and the latter with properly placed ligatures; embolus is less common. The point that the author has made, that the woman with a 50 per cent hemoglobin after transfusion is not as good a risk as the woman who has 50 per cent to begin with, is one that we all want to take cognizance of.

DR. ALBERT MATHIEU, Portland, Ore.: I should like to make an appeal for the further use of iodized oil for the visualization of the uterine cavity in cases of fibromyoma. The method is safe. Dr. Randall of the Mayo Clinic has used it in about 1,200 cases. He is still using it, and doing so safely. It visualizes the uterine cavity and determines the exact location of the cavity in relation to the tumor. By the use of a small lead wire on the abdominal wall, the contour of the tumor can be outlined in the roentgenogram. With that outline and the iodized oil in the uterine cavity, one can determine exactly the relationship between the cavity and the uterine body. It is also a great help in diagnosing the occasional submucous pedunculated fibroid, unsuspected, and differentiating between ovarian cyst and fibroid. It is a great aid in teaching the clinical side of this subject. That is obvious, of course, and one can show the student who is examining a woman the relationship between the total mass and the uterine cavity. Another way in which iodized oil is of great aid is in the differentiation between the type of operations that would be selected. When the tubes are found patent and the woman is of childbearing age, and there is some question as to whether myomectomy or hysterectomy should be done, one would, of course, do a myomectomy; but in the case of nonpatent tubes, a hysterectomy.

DR. FRANK W. LYNCH, San Francisco: Dr. Polak brought out very clearly what I wished to say but did not say, namely, that all fibroids need watching. We noticed that when a tumor started to grow, it grew very quickly, and that nearly all of the large tumors grew quickly, as if tumors were predestined to grow quickly or remain small. Especially did we notice the quick development of tumors in young and in old women. The study of the fibroid rest is most interesting. Think of the thousands and hundreds of thousands of sections of cervices in which investigators have been looking for carcinoma rests without finding them. Is there something in the tissue that is below par? They are the weeds that grow in the waste places. The tumors develop according to their blood supply, as Sampson has shown clearly and conclusively. That there is an endocrine disturbance must be admitted. Few of us are free and equal

except in the eyes of the law. Dr. Mathieu's observations are most interesting. I have not followed his procedure in outlining the tumor. The only point on which I differ with Dr. Polak is the method of treatment. As I grow older I grow more conservative. I never yet have regretted doing a myomectomy, and I do myomectomies more and more because tissues must be put into men and women for a purpose unless the usefulness of the organ has been stopped by age. I feel that in our technic of operating, the great risk comes tying from blood vessels. I am certain that the technic of clamping first and then tying after the clamp is removed is setting emboli on their way. I cannot feel that we would get more emboli or thrombi from myomectomies, because the circulation of a fibroid tumor is notoriously deficient and we are dealing with small vessels. Our highest mortality is from carcinoma, 8 per cent. Our next highest mortality is from cesarean sections, 4 per cent. Next is the type of case that Dr. Fluhmann reviewed in which we did hysterectomies for idiopathic bleeding, whatever that is. Dr. Litzenberg gave me the definition: the sand in which the ostrich puts its head. Three per cent of the idiopathic patients died from thrombosis. The mortality of fibroids in our cases, up to a few weeks ago, was 1.10 per cent.

DEFORMITY OF THE THORAX SECONDARY TO PLEURAL OR PULMONARY DISEASE *

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The thoracic wall is part of the respiratory mechanism. Deformity of its bony framework lessens its mobility and so the respiratory capacity. Atelectasis or compression of the lung also lessens respiratory capacity and increases the cardiac load particularly of the right side of the heart.

Deformity of the thoracic cage follows a marked grade of scoliosis or kyphosis from any cause. This presentation is limited to that type of thoracic deformity which is secondary to disease of the pleura or lungs. Such thoracic deformity may or may not involve the spine. When a marked grade of secondary deformity of the spine does develop it may produce marked increased deformity of the ribs and other bony structures.

The diseases of the pleurae or lungs which produce thoracic deformities are chiefly the chronic inflammatory processes which result in extensive scar tissue contraction.

The type of change in the bony framework varies, it seems, in part as a result of the direction of the pull exerted by the scar tissue and in part as a result of the relative mobility of the structures subect to traction: the ribs, spine, mediastinum and diaphragm. For these reasons, different causes may produce similar deformity and any one etiologic group will show different types and degrees of deformity. Some cases of empyema, for example, will produce changes only in the ribs; others result in a marked scoliosis. Chronic pulmonary fibrosis may effect a marked retraction of the chest wall and others a displacement of the mediastinal structures, to the extent of a complete dextrocardia, without noticeable changes in the ribs or spine. For purposes of description, the structural types of deformities will therefore be first outlined, and then some of their etiologic variations.

The deformity may be chiefly of the ribs on the affected side, producing a contraction of the hemithorax. The intercostal spaces are narrowed and the direction of the ribs more oblique than the normal. Such deformity is frequently seen in cases of chronic fibroid phthisis and there is often an associated displacement of the mediastinal structures toward the narrowed side. In other cases, particularly following localized chronic pleuritis, there is a more localized contraction of the hemithorax caused by a sharp bend of the affected ribs (figs. 1 and 2). The respiratory mobility of the affected side is greatly restricted and there is a marked reduction in the total vital capacity. The rib deformity in some cases of chronic empyema may be extreme. The ribs may be found in direct contact or overlap and in case of marked periosteal proliferation they may be fused into a bony plate. The cross-section may be roughly that of an equilateral quadrangle or triangular with relatively long sides and narrow base, or the ribs may be flattened from above downward to such a degree that the outer and inner aspects constitute the edges instead of the sides. Such ribs are usually of increased density, sometimes being of eburnated hardness. These deformities suggest a compensatory structural change to withstand a greatly increased concentric stress.

Associated deformities of both spine and ribs present a complex relationship. The deformity of the spine is usually a scoliosis, which may be simple or with a compensatory curve in the opposite direction of the upper or lower spine or in both portions of it. In the presence of a marked scoliosis the shape and relative position of the ribs and other structures are changed on both sides, resulting in a marked asymmetry. The contour of the chest is as though it had been distorted by pressure applied obliquely. The main dorsal concavity of the spine is usually toward the affected side. On the side of concavity, the chest is flattened posteriorly and prominent anteriorly. On the opposite side posteriorly there is a keel-shaped prominence running parallel with the spine while anteriorly the hemithorax is flattened. These changes are due to an alteration in the normal curve and in the direction of the long axis of the ribs. On the side of convexity the direction of the ribs is more nearly perpendicular to the long axis of the body, while on the opposite side the normal obliquity is accentuated.

The changes in the ribs are most extensive in chronic empyema with marked scoliosis, and they differ diametrically from the changes in the ribs incident to primary scoliosis. In extreme cases of empyema scoliosis the downward and inward deflection of the ribs on the affected side—the side of vertebral concavity—is so great that the pleural cavity on that side is greatly reduced in volume. In primary scoliosis, on the contrary, the ribs on the side of vertebral concavity are elevated above the normal, resulting in an increase in volume of the pleural cavity on that side.

The changes in the shape and position of the sternum and clavicle vary with the degree of deformity. The sternum is often displaced laterally. The scapula is displaced outward on the side of convexity and inward on the side of concavity. The shoulder is elevated on the side of convexity.

Etiologic types of thoracic deformities may be grouped as pleural and pulmonary. A secondary type of scoliosis is that which may develop following plastic operations in the thorax. One outstanding fact regarding these etiologic types is that a given pathologic process may produce differing degrees of deformity or

* From the Department of Surgery, University of Illinois College of Medicine.

* Read before the Section on Orthopedic Surgery at the Eightieth Annual Session of the American Medical Association, Portland, Ore., July 12, 1929.

none. The greatest deformity is observed, for example, in chronic empyema, but the majority of the cases of chronic empyema even of long duration show little or no deformity.

DEFORMITY FOLLOWING CHRONIC EMPYEMA

The main factors in the development of a marked grade of empyema deformity are chronicity and lability of the structures. It follows, therefore, that deformity is most apt to occur in cases in which the empyema begins in childhood and in which the suppuration is of long duration. The empyema may be of the ordinary pyogenic type or it may be tuberculous with or without a secondary pyogenic infection.

Delpech [1] was the first to describe in any detail the changes in the thorax and spine in empyema, attributing the scoliosis to the unilateral stress on the attachments of the ribs to the spine produced by the downward pull

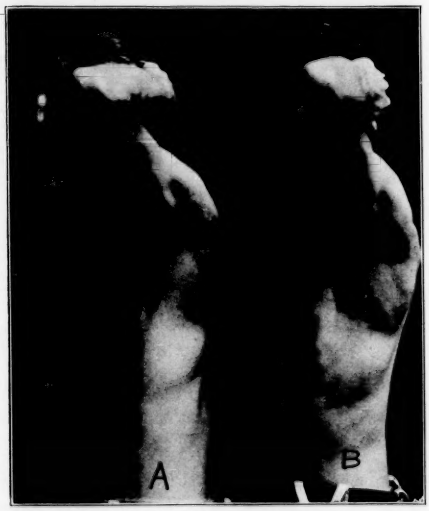

Fig. 1.—Identical twins. Note changes in contour of thorax and muscle atrophy in *A*.

of the contracting pleura on the ribs. The literature for eighty years after Delpech does not contain anything of importance on the subject. Schultess [2] was the first to describe some of the characteristic pictures of empyema scoliosis. Walther [3] showed that there is a characteristic torsion of the spine, though less than in other types.

An example of a sterile tuberculous empyema producing a deformity of the chest wall with only slight curvature of the spine is shown in case 1.

CASE 1.—An identical twin, a youth, aged 18, while in good health suddenly developed a spontaneous tension pneumothorax from which he nearly died before the tension was relieved by aspiration of the air. He then had a series of profuse intrapleural hemorrhages requiring transfusion. Thoracentesis was performed at intervals during a period of twelve months. The fluid at first was bloody, then was serosanguineous and finally became purulent but remained sterile to culture throughout. At the first aspirations upward of 2,000 cc. of fluid was obtained. The amount gradually diminished to 100 cc. and at the last aspiration none was obtained.

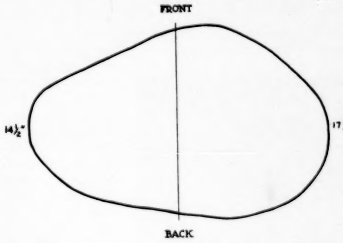

Fig. 2.—Perimeter of thorax at level of nipple in twin *A*, showing 3 inches decrease in perimeter on side of pleuritis one year after onset of the disease.

During the year following, a well defined deformity of the thorax developed as shown in the photographs and drawings of the chest contour (figs. 1 and 2). His vital capacity was reduced to about 1,400 cc.; chest expansion on the sound side was 17½ inches, on the deformed side 14½ inches.

In this case the deformity resulted from the cicatricial contraction of the thickened pleura secondary to the suppurative sterile tuberculous effusion, the type of deformity being due apparently to the localized extent of the pleuritis.

An example of deformity due to a tuberculous empyema of long duration was presented by a patient who was 20 years old at the time of onset and the empyema had been draining constantly through a silver cannula for twenty-two years.

An instance of marked scoliosis with rotation and kyphosis is given in case 2.

CASE 2.—A man, aged 26, had had a postpneumonic empyema with bronchial fistulas for nineteen years, that is, since the age of 7. It was drained for the first time after having been present ten months. After eight months of drainage, the tube was removed and the sinus allowed to close. He then coughed up the pus. He could elicit a splash in the thorax at will. Seventeen years after the onset he had a second drainage operation and drained thereafter for six months. Later he had injections of bismuth and solution of formaldehyde into the empyema cavity. During these years there were periods of remission and exacerbations of symptoms and a progressively increasing spinal and thoracic deformity.

Fig. 3.—Extreme scoliosis and kyphosis following empyema with bronchial fistula of nineteen years' duration; healing of empyema following complete costectomy and partial excision of pleura.

A complete costectomy resection of the pleura and muscle plastic operation performed in a series of nine operations resulted in complete healing of the empyema cavity. The lower ribs were found to be greatly depressed toward the spine and were square on cross-section, each side being about

1. Delpech, J.: Ueber die Empyema, Abhandl. der Akad. d. Wissensch., Chir. de Montpelur I, 111, 1827.
2. Schultess, W.: Die Pathologie und Therapie der Ruckgratsverkrummerungen, Joachimsthal's Handb. d. orthop. Chir. 1, 1905-1907.
3. Walther, Hans: Ueber die empematische Skoliose, Ztschr. f. orthop. Chir. **26**: 401, 1910.

1.5 cm. in width. The parietal pleura was about 2 cm. in thickness.

The deformity in this case is extreme but characteristic of the empyema type described. The roentgenogram showed the characteristic depressed position of the ribs on the affected side and their elevated position on the sound side (fig. 3).

An atypical deformity following empyema is illustrated in case 3.

CASE 3.—A youth, aged 18, had pneumonia at the age of 3½ years. Within a few weeks, two ribs were resected for drainage of the complicating empyema. During the next two and a half years the wound closed and opened intermittently. At the age of 6 a second operation was performed, five ribs being resected and two drainage tubes inserted. After a few months the drainage opening had again narrowed down to a sinus, which opened and closed intermittently during a period of eighteen months. When 7½ years of age, a third drainage operation was performed with the same sequel. At the age of 13 the fourth and final rib resection was done, following which the cavity healed and has remained so to the present time. A mild degree of chest deformity was first noticed at the age of 7½ years after the third operation. It grew progressively more marked during the succeeding five or six years (fig. 4).

Fig. 4.—Extreme scoliosis and general thoracic rotation and deformity fourteen and one-half years after onset of empyema. Note atypical concavity toward sound side.

The remarkable feature of this case is the extreme grade of convexity of the scoliosis toward the side of the empyema with the characteristic relative horizontal position of the ribs and voluminous pleural cavity on the sound side. The left margin of the spine lay in the line of the left posterior axillary line.

DEFORMITY SECONDARY TO PULMONARY DISEASE

Chronic Pulmonary Tuberculosis.—A characteristic example of narrowing of the hemithorax without much scoliosis shifting of the mediastinal structures is shown in case 4.

CASE 4.—A machinist, aged 26, with a chronic essentially unilateral tuberculosis of seven years' duration, showed no respiratory movements of the left hemithorax. The supraclavicular and infraclavicular spaces were deeply retracted. The intercostal spaces were palpably narrowed. The auscultatory signs were those of a diffuse parenchymatous involvement of the whole left lung with cavity signs near the apex. The roentgenogram showed the left hemithorax narrowed approximately a third, the intercostal spaces much decreased and the direction of the ribs downward. The heart was retracted to the left of the right vertebral border (fig. 5).

At thoracoplasty, the ribs were found characteristically triangular with the narrow side directed outward.

Chronic nontuberculous pulmonary suppuration not infrequently induces a cicatricial contraction of the chest wall similar to the case of pulmonary tuberculosis described. Occasionally scoliosis with a marked degree of deformity results. An instance of such deformity is shown in the following case:

CASE 5.—A girl, aged 12 years, had had whooping cough at the age of 6 years, following which she had a persistent cough but with only a little sputum. At the age of 6 she had pneumonia in the left lung and was in bed with this illness for three months. Since that time the cough has been productive of several ounces of purulent sputum daily. She has had frequent spells of pleurisy pains, fever, chills and night sweats. However, during the last three years she has been able to attend school.

The most prominent feature on physical examination was the thoracic deformity. There was a marked scoliosis with convexity to the right in the upper dorsal regions, with a secondary deviation to the left in the lower dorsal and lumbar region. The ribs showed the characteristic posterior keel shaped deformity in the right, with flattening of the left thorax anteriorly. The sternum was displaced to the right. The right shoulder was markedly higher than the left and the right scapula displaced greatly to the right.

The roentgenogram following injection of iodized oil showed a saccular bronchiectasis on the left with a pleuritis. On the right, exploratory aspiration did not yield any pleural effusion. Several attempts to inject iodized oil into the right bronchial tree failed. The ribs on the side of the convexity were not depressed as in typical cases of empyema scoliosis. The sputum has been persistently negative for tuberculosis.

SURGICAL TREATMENT OF THORACIC DEFORMITY DUE TO PLEURAL OR PULMONARY DISEASE

If scar tissue retraction of pleura and lung is the true explanation of deformities of the etiologic types under consideration, the release of such scar tissue traction should constitute a rational method of prophylaxis and treatment. On this principle I have performed resection of the parietal pleura and a pulmonary decortication in a number of cases with gratifying results. The deformity was in part corrected and the pulmonary function increased. Gurd,[4] Lilienthal [5] and others report similar observations. Tubby,[6] in his textbook, in a brief discussion of empyema deformities, says "The Estlander operation increases the deformity markedly." On the contrary, I have never observed an increase in deformity of the spine following the most extensive resections of ribs and parietal pleura. If there has been any change, it has been a lessening of the scoliosis.

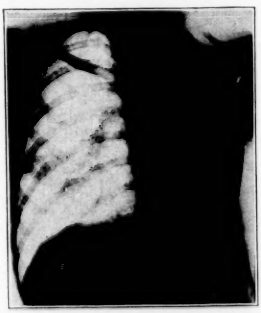

Fig. 5.—Fibroid type of pulmonary tuberculosis of seven years' duration. Note narrowing of hemithorax and shifting of heart and trachea toward diseased side.

In case of cicatricial contraction of a diseased lung resulting in mediastinal displacement, mobilizing the chest wall by excising segments of the ribs posteriorly after the method of Sauerbruch [7] releases this cicatricial traction on the mediastinum and promotes the healing process within the lung itself.

In cases of scoliosis associated with fibroid phthisis with the typical concavity toward the diseased lung, a posterior thoracoplasty often serves to correct the scoliosis. Occasionally an overcorrection is obtained so that there results a mild grade of curvature

4. Gurd, F. B.: Scoliosis Accompanying Chronic Infected Open Pneumothorax: Its Origin and Correction, Arch. Surg. **5**: 366-372 (Sept.) 1922.
5. Lilienthal, H.: Thoracic Surgery, Philadelphia, W. B. Saunders Company **1**: 544, 1925.
6. Tubby, A. H.: Deformities Including Diseases of the Bones and Joints, New York, Macmillan Company **1**: 485, 1912.
7. Sauerbruch, F.: Chirurgie der Brustorgane **1**, 1920.

with its concavity toward the sound side (fig. 6). Sauerbruch, Alexander and others have recorded similar observations.

In explaining these changes it must be assumed that the scoliosis is secondary to a force exerted against the spine by the ribs. Normally this force is equal on the two sides. In case of a fibrotic lung producing a narrowing of the intercostal spaces, the lateral pressure of the ribs on this side is increased; hence the curvature toward this side. When the ribs on this side are

Fig. 6.—*A*, left pulmonary tuberculosis and tuberculous empyema; note slight curvature of spine toward affected side. *B*, appearance following complete costectomy and partial resection of parietal pleura; note scoliosis away from affected side.

resected, the unopposed normal pressure from the opposite side corrects the deformity and in case of a very mobile spine may result in a slight overcorrection.

These observations on correction or overcorrection of a scoliosis incident to thoracoplasty for pulmonary tuberculosis lend further support to the belief that deformities following pleural and pulmonary disease are due chiefly to scar tissue contraction and that when scoliosis occurs it is due to increased lateral pressure of the ribs. When extensive structural changes have occurred, any marked improvement of the scoliosis is naturally not to be expected; but the progress of the deformity perhaps may be arrested.

30 North Michigan Avenue.

ABSTRACT OF DISCUSSION

DR. P. M. HICKEY, Ann Arbor, Mich.: We are very particular in reporting on roentgenograms of the chest to give careful consideration to the contour of the thoracic cage and to the alinement of the vertebrae. Often the x-rays will show changes in the thoracic cage due to pulmonary conditions before they may be discovered by other methods of examination. In regard to the prevention of some of these conditions: Years ago, when I was interested in pulmonary disease from the clinical standpoint, I was in the habit of trying to prevent empyema and to restore the symmetry of the chest and the vital capacity of the lungs. I found that the rarefied air at higher altitudes helped more in the subsequent treatment of these acute conditions of the chest than any other means. In the absence of that, we made use of the pneumatic cabinet. Probably now most of the pneumatic cabinets are stored in out of the way places and are not used, but I found them of great value in restoring normal chest conditions. I have seen patients who were twisted to one side through retraction of the pulmonary space on that side restored to good alinement by a few weeks', or perhaps several months', treatment with the pneumatic cabinet employed every day. It is a very simple method of preventing these thoracic deformities from becoming permanent.

DR. H. H. MARKEL, San Francisco: One of the graduates of the University of California Medical School has been doing thoracoplasty in some of these extreme cases with favorable results in the cure of the scoliosis.

DR. CARL A. HEDBLOM, Chicago: I did not emphasize, perhaps, that these deformities occur not only following simple chest operations but also after empyema, particularly in children.

RECOGNITION OF SOME OF THE LESS COMMON DISEASES

DUODENAL-JEJUNAL DIVERTICULA; MUCOCELE OF THE APPENDIX AND THE CECUM *

MARTIN G. VORHAUS, M.D.
NEW YORK

By means of constant effort and the correlation of experimental and clinical observations, neurologists have given us an amazingly precise topography of the brain. In recent years, with the aid of x-rays, the gastro-intestinal tract is the subject of a similar survey. Today only the small intestine can truly be called the "silent area" of the alimentary tract. In presenting the following cases, I am making an attempt to encroach on this uncharted sea.

The duodenal-jejunal junction has been relatively little studied. In a vast majority of cases it is hidden by the barium-laden stomach, and its anatomic position renders it relatively inaccessible to examination.

Chomel,[1] in 1710, first described diverticulum of the duodenal-jejunal junction anatomically. In 1778 Morgagni [1] and in 1815 Fleischmann [1] added additional references to the anatomic data.

In 1896 Hauseman [2] reported the observation at autopsy of a single diverticulum of the upper jejunum which contained an accessory pancreas attached to its apex.

In 1913 Case [3] first reported the diagnosis of duodenal diverticulum by x-rays, exhibiting films at the scientific exhibit of the American Medical Associa-

Fig. 1 (case 1).—Duodenal-jejunal diverticulum; three hour film.

tion. There is no description of these cases in the literature.

Forsell and Key,[4] in 1915, reported a case in which a pouch was seen at the region of the duodenal-jejunal junction which showed a ninety-six hour barium retention. They correctly diagnosed a duodenal-jejunal diverticulum. At operation a thinned out diverticulum

* Read before the Section on Gastro-Enterology and Proctology at the Eightieth Annual Session of the American Medical Association, Portland, Ore., July 12, 1929.

1. Quoted by Krogius (footnote 9).
2. Hauseman: Virchows Arch. f. path. Anat. **164**:400, 1896.
3. Case, J. T.: Am. J. Roentgenol. **3**: 316-326 (June) 1916.
4. Forsell and Key: Nord. med. Ark. **2**: 1-2, 1915.

was found. No abnormal structures in the sac, other than enlarged blood vessels, were seen.

Akerlund,[5] in 1918, reported a case of duodenal-jejunal diverticulum which seemed at first to be a gastric diverticulum. Later, however, four hours after the barium meal there was a retention while the stomach was empty. Operation for diverticulum was unsuccessful, as it was not located. Ten days later the patient died and a duodenal-jejunal diverticulum was found lying behind the pancreas.

Fig. 2 (case 1).—Duodenal-jejunal diverticulum; six hour film.

In 1920 Case [6] reported two cases of multiple jejunal diverticula.

In 1921 Terry and Mugler [7] collected reports of nineteen cases of jejunal diverticula; of these only one (Hauseman [2]) was at the duodenal-jejunal junction and in only three cases were the symptoms due to diverticula.

In 1924 Carnot, Peron and Garnier [8] reported a case. There was a barium-filled pouch at the duodenal-jejunal junction, which was not tender. The patient had a pain radiating from the epigastrium to the precordium, sternum and back. The patient died ten days later of apoplexy and pneumonia. Autopsy revealed a dilated diverticulum of the duodenal-jejunal junction measuring 5.5 cm. by 4.5 cm. There was no inflammatory reaction, there were no glandular rests, and Brunner's glands were normal.

In 1921 Robineau and Gally [8] reported a case of duodenal-jejunal diverticulum with two severe hematemeses and intense anemia. The hemoglobin was 25 per cent, and the red blood cell count was 950,000. Roentgen studies showed an opaque pouch three hours after the barium was given at the duodenal-jejunal junction with an empty duodenum. Operation revealed a diverticulum in the distal part of the duodenum 2 cm. proximal to the duodenal-jejunal junction, on the internal surface of the duodenum. It was excised and the patient was discharged cured.

In 1927 Krogius [9] reported eleven cases of intestinal obstruction, partial or complete, caused by duodenal-jejunal diverticula, and described the ways in which obstruction may occur. Only one out of the eleven was diagnosed preoperatively, while six patients were alive and well after operation.

5. Akerlund: Fortschr. a. d. geb. d. Röntgenstrahlen **26**: 327, 324, 1918.
6. Case, J. T.: Diverticula of Small Intestines, Other Than Meckel's Diverticulum, J. A. M. A. **75**: 1463 (Nov. 27) 1920.
7. Terry, W. I., and Mugler, F. R.: Diverticula of the Jejunum, Arch. Surg. **2**: 347 (March) 1921.
8. Quoted by Garnier, Paul: Les diverticules des troisième et quatrième portions de duodenum, Thèse de Paris, 1925.
9. Krogius, A.: Deutsche Ztschr. f. Chir. **200**: 273, 1927.

The same year Roevekamp,[10] in an article on the differential diagnosis of duodenal-jejunal diverticula by x-rays, quotes a case of Groedel's which was diagnosed as duodenal-jejunal diverticulum by x-rays. The patient, a woman, complained of a severe epigastric pain one hour after eating, radiating around both sides and to the back; later the pains became crampy and were followed by defecation with relief of pain. This patient was not operated on, so that the diagnosis was not established.

From an analysis of these few cases, it is apparent that duodenal-jejunal diverticula may exist without symptoms, and that when symptoms are present they are probably due to stasis in the pouch or obstruction, partial or complete, caused by the pouch.

It is in the partial or intermittent type of obstruction that the diagnosis is of the greatest importance. A preoperative diagnosis should be attempted; otherwise the true condition may be overlooked. It is not often that the abdominal surgeon carefully scrutinizes the duodenal-jejunal junction.

REPORT OF CASES

CASE 1.—A woman, aged 35, referred to me by Dr. Roland I. Grausman, for the previous eight months had had attacks of severe epigastric distress and at times crampy pains, which radiated slightly upward and occurred from fifteen minutes to one hour after eating. She had learned that either forced vomiting or a strong saline laxative would invariably terminate her attacks. As a consequence there was a slight loss of weight due to a reduction in her diet but no impairment of appetite.

Clinical examination of the abdomen revealed a focal point of tenderness in the epigastrium to the left of the midline, which was more pronounced when examined shortly after the ingestion of food. Gastric secretory studies were normal, as were the blood, urine and fecal examinations.

Although the same focal point of tenderness was elicited on fluoroscopy, the true nature of the condition was not apparent then or by the immediate studies. In the three and six hour observations an opaque pouch was seen at the level of, and to the left of, the third lumbar vertebra. At six hours the stomach and the duodenum were empty but the pouch was densely filled and assumed a triangular shape with its apex pointing superiorly. At the twenty-four hour observation the pouch was empty.

Fig. 3 (case 2).—Pseudodiverticula at the duodenal-jejunal junction; six hour film.

The correlation of the clinical and roentgen observations just related localized the lesion as a diverticulum of the duodenal-jejunal junction with partial and intermittent obstruction.

Dr. Philip M. Grausman operated on her and found the diverticulum, which was herniated under the ligament, and into the fossa, of Treitz. It was freed and excised. The appendix was also removed. The diverticulum measured 5 cm. in length and 2.5 cm. in height. The pathologic report by Dr. Henry L. Jaffe disclosed a duodenal-jejunal diverticulum just distal to the ligament of Treitz, postnatal in origin, the result of an aberrant pancreas in the wall with weakening of the wall.

The immediate convalescence was uneventful. Six months later, the patient reported that she was well and had not had any more attacks. A gastro-intestinal roentgen examination at that time did not disclose any abnormalities at the site of

10. Roevekamp: Fortschr. a. d. geb. d. Röntgenstrahlen **36**: 298 (Aug.) 1927.

operation. On year later she continued in good health without symptoms.

During this patient's convalescence, a second case of disease at the duodenal-jejunal junction came to my attention:

CASE 2.—A woman, aged 37, complained of six attacks of pain in the last three months. The pain was located in the epigastrium and radiated slightly upward; it occurred soon after eating, was crampy in nature, and was accompanied by a sense of "not being able to breathe." Induced vomiting brought relief. The bowels were constipated and the patient suffered from menstrual irregularities. Examination of the abdomen revealed a focal point of tenderness in the epigastrium to the left of the midline. Secretory studies were normal. There was a slight secondary anemia. The Wassermann reaction was negative. There was no occult blood in the feces. The urine did not show any abnormal observations.

Fluoroscopy of the stomach and cap did not reveal any abnormalities. There was a focal point of tenderness over the duodenal-jejunal junction. However, it could not be seen for the barium-laden stomach obscured it in the immediate and in the three hour observations. The six hour film showed a slight six hour gastric residue. Superior to this, and at the level of and to the left of the third lumbar vertebra, were five small masses of barium residue. These were not associated with the gastric residue and there was focal tenderness on pressure at this point. The later observations failed to reveal these shadows. Roentgenograms of the gallbladder indicated cholelithiasis.

Dr. Philip M. Grausman operated and removed a small contracted gallbladder containing one stone with a cholesterol nucleus. When the duodenal-jejunal junction was exposed, a thick fan-shaped adhesion was found. Caught in between the strands of the adhesion, and slightly compressed, were five small portions of the small intestine. They had the appearance of small nipples rising above the surface of the adhesion. As the adhesion was dissected out, these small pouches disappeared, flattening out into the surface of the intestine. There were no other adhesions present. The patient recovered quickly from the operation and resumed her work.

For four months after operation the focal point of tenderness in the epigastrium to the left of the midline persisted, as did the constipation. Six months later it had disappeared and with it the symptoms as well. Reexamination of the gastro-intestinal tract failed to reveal any abnormality at the duodenal-jejunal junction.

The cause of the adhesion which, by retracting, caught up and pinched five small bits of the small intestine in its meshes, was not revealed. The relationship of the cholelithiasis and these pseudodiverticula is vague. From the study of the stone, it was apparent that it had taken many months, if not years, to form. On the other hand, the ease with which the pouches disappeared on section of the adhesions, and the normal appearance of the surface of the duodenal-jejunal area thereafter, suggested a short period of time. It is therefore more than likely that the symptoms were due to the pseudodiverticula of the duodenal-jejunal junction rather than to the gallstone. What is more important, however, is that without the clinical and roentgenographic evidence this condition might easily have been overlooked at operation.

The last case that I wish to report is one located at the distal end of the small intestine. This case was studied for several months before operation because of the fact that the patient refused to consent to operation until the attacks became frequent and severe. As a result of this I was able to secure some roentgenograms of a barium-filled mucocele of the appendix and cecum and to repeat and verify my observations.

In the differential diagnosis of those abdominal diseases associated with a palpable tumor, mucocele of the appendix is not often considered and yet it was under a similar title that Virchow [11] described it in 1863. He conceived it to be a colloid degeneration of the appendix.

Fig. 4 (case 3).—Complete filling of mucocele of appendix and cecum, Nov. 3, 1927.

Fig. 5 (case 3).—Partial evacuation of mucocele of appendix and cecum, Nov. 3, 1927.

Fig. 6 (case 3).—More evacuation of mucocele of appendix and cecum, Nov. 3, 1927.

This was in contradistinction to the point of view of Rokitansky,[12] who first reported this condition in 1842 under the description of hydrops of the appendix.

In 1864 Cruveilhier [13] first described the chief complication of this disease as a gelatinous degeneration of the peritoneum, and in 1884 Werth [14] first reported the same condition; namely, pseudomyxoma peritonaei. He observed, at autopsy, free and encysted gelatinous masses in the peritoneum and correctly interpreted their origin as due to rupture of ovarian cysts.

It is now generally admitted that the only cause of pseudomyxoma peritonaei in the male is mechanical distention or rupture of an appendicular mucocele (Hyvernand [15]).

Hartman [16] reported ten cures out of eleven patients operated on.

The first clinical observations on mucocele of the appendix appear to be those of Maydl [17] in 1892. He

11. Virchow: Die Krankhaften Geschwulste **1**: 250, 1863.
12. Rokitansky: Lehrbuch der pathologischen Anatomie, 1842, p. 288.
13. Cruveilhier, quoted by Hyvernand (footnote 15).
14. Werth: Arch. f. Gynaek. **24**: 101, 1884.
15. Hyvernand: Le pseudomyxoma d'origine appendiculaire, Thèse de Paris, 1919-1920, p. 26.
16. Hartman and Binet: Ann. de gynéc. et d'obst., March-April, 1918, pp. 66, 73, 75, 77.
17. Maydl: Wien. med. Ztschr., 1892, p. 465.

followed a case of recurrent appendicitis for several years and suspected that stenosis of the appendix lumen with retention of mucus was occurring, with the result that a mucocele had developed.

Lennander,[18] in 1893, reported two cases diagnosed clinically by the symptoms and the palpable mass. No mention is made of operative or autopsy proofs in these first cases.

Frankel,[19] in 1901, reported the first autopsy of pseudomyxoma peritonaei with a ruptured appendix containing the same gelatinous substance as found in the peritoneum.

The best descriptions of the causation and pathologic changes of this disease are found in the writing of Elbe [20] in Germany and Deaver [21] in America.

The first process is assumed to be a slowly stenosing one of the lumen at one or more points. Distal to the obliterated lumen, sterile contents are presupposed. Then in the presence of actively secreting mucous glands a distention occurs. One more theoretical consurvives long enough, or a thin watery cyst due to cessation of activity of the mucous glands, which became flattened out as a result of the distention, and a seeping in of the blood lymph from the engorged vessels in a state of vascular stasis.

In spite of many case reports by Stengel,[25] Nash,[26] Porter,[27] Deaver,[21] Simon,[28] Weaver [29] and many others, little has been added to the symptomatology or diagnosis. Simon [28] reviews nine cases in all, incorrectly diagnosed as acute appendicitis, retroperitoneal tumor, carcinoma, ovarian cyst and irreducible hernia.

Weaver,[29] after reporting two cases diagnosed at operation, collected 168 cases reported in the literature up to April, 1928.

The only reference to the use of x-rays that I have been able to find in the literature is in the case reported by Simon.[28] He states that the roentgenogram did not reveal any abnormality of the colon and that the mass did not appear to be part of the colon. Yet at operation a mucocele of the appendix as large as a child's

Fig. 7 (case 3).—Complete filling of mucocele of appendix and cecum, Feb. 24, 1928.

Fig. 8 (case 3).—Partial evacuation of mucocele of appendix and cecum, Feb. 24, 1928.

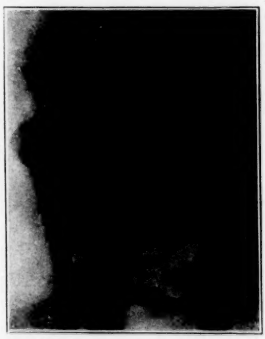

Fig. 9 (case 3).—More evacuation of mucocele of appendix and cecum, Feb. 24, 1928.

cept completes the picture; namely, a change in the mucosa whereby mucin is transformed into pseudomucin. This substance was identified chemically and named by Hammarsten. Donat [22] differentiated it from mucin, and later Hammarsten [23] demonstrated a reducing substance in pseudomucin which was finally isolated by Zängerle [24] as glucosamin.

The facts presented in favor of this theory of production are convincing and may be thus summarized:

1. There must be complete or almost complete stenosis of the lumen, else with the increasing distention the fluid would be forced out.

2. There must not be any pathogenic micro-organisms present, else empyema or gangrene would result.

3. An active mucous membrane, secreting mucus in excess of its absorption, is necessary also, otherwise distention would not occur.

The end-result appears to be either rupture with the development of pseudomyxoma peritonaei, if the patient head with constrictions separating it into three parts was found. In a personal communication, Le Wald reports that he has a case with positive roentgenographic observations.

The following case is unique in that the positive clinical and roentgenographic observations established the preoperative diagnosis:

CASE 3.—A woman, aged 46, referred to me by Dr. Miguel G. Elias, in May, 1927, complained of vague abdominal distress following dietary indiscretions. She had had a chronic bronchitis for years. Although she had determined to go to Carlsbad, she consented to a roentgen examination just prior to her departure. These studies revealed a suggestion of pericholecystic adhesions. The cecum and the appendix were not filled in the twenty-four hour observation, although there was tenderness in this region during fluoroscopy. This corresponded to a slight tenderness over McBurney's point on examination. There was no rigidity, nor was any mass felt.

She returned in September of that year complaining of several attacks of cramplike pains throughout the abdomen even while under treatment abroad. There was still some tenderness in the right lower quadrant of the abdomen, though it was only slightly.

18. Lennander: Volkmanns Sammlung Clin. Vortrage, 1893, number 75.
19. Frankel: Ueber das sog. Psuedomyxoma Peritonaei, München. med. Wchnschr. **24**, 1901.
20. Elbe: Beitr. z. klin. Chir. **64**: 635, 1909.
21. Deaver, J. B.: Appendicitis: Its Diagnosis and Treatment, ed. 4, Philadelphia, P. Blakiston's Son & Co., 1913, pp. 107-109.
22. Donat: Arch. f. Gynaek. **26**: 478, 1885.
23. Hammarsten, quoted by Lewis: Surg. Gyn. Obst., December, 1914, pp. 757-760.
24. Zängerle: München. med. Wchnschr., 1900, p. 414.
25. Stengel, Alfred: Mucocele of the Appendix, J. A. M. A. **46**: 495 (Feb. 17) 1906.
26. Nash, W. G.: Brit. M. J. **2**: 595 (Nov. 8) 1919.
27. Porter, H. K.: Australia M. J. **2**: 252 (Sept. 6) 1924.
28. Simon, Stefan: Deutsche Ztschr. f. Chir. **187**: 1-14, 1924.
29. Weaver, D. D.: California & West. Med. **28**: 500 (April) 1928.

October 4 she had a severe attack of pain in the right lower quadrant, nausea and vomiting. Examination at that time revealed a small round discrete firm mass in the right lower quadrant which was not affected by respiration. There was no rigidity; the rectal temperature was 101. The following day the patient felt well; the temperature was normal and the mass was gone. Between this day and November 3 of the same year she had three similar attacks, all associated with a palpable mass, as described, which disappeared the following day. The highest blood count in these attacks was 12,000 and the polymorphonuclear leukocytes did not exceed 75 per cent.

November 3, in the interval between attacks, gastro-intestinal roentgen studies were made. In the observations of the barium meal a definite pathologic condition was not determined. Barium enema studies, however, revealed an irregular filling defect of the lower portion of the cecum and a large irregularly filled appendix. So large was the shadow of the appendix that at first it appeared to be the terminal ileum. The cecal defect showed a series of superimposed striations as though the barium were filtering through different levels of semiviscid substance. On partial evacuation there was a feathered or branched appearance to the lower cecum and appendix.

The patient refused operation and continued to have similar attacks except that their severity increased. The later attacks were accompanied by a larger mass in the right lower quadrant which persisted for two or three days before entirely disappearing. The blood counts failed to show any change over the previous observations and in no way suggested a septic or purulent process. In the interim, repeated Wassermann tests gave negative reactions. The chemical analysis of the blood did not show any abnormalities, and the feces continued negative for occult blood and ova.

February 24, the barium enema studies were repeated and revealed the same extensive filling defect of the lower cecum and appendix described in the series of November, 1927. There was, however, less of the feathery appearance and more of the irregular mottled shadows as those found to be polypoid tumors. The correlation of the clinical and the roentgen observations permitted only one preoperative diagnosis, that of mucocele.

March 3, 1928, the patient was operated on by Dr. Philip M. Grausman and a large mucocele of the appendix and lower cecum was removed. It measured 12 cm. in length and 5.5 cm. in circumference. It was not attached at any point except at its base. The patient's recovery was uneventful. She was reexamined for the last time in May, 1929. She had not had any attacks and there were no abnormalities to be seen in the barium enema studies taken postoperatively.

This proved case of mucocele must modify the previous conception of the development and production of this disease. In addition to the classification already mentioned, an intermittent exacerbation of mucocele must be included. Here the stenosis of the lumen, though complete, subsides after a time with complete collapse of the tumor. Furthermore, the fact that barium in an enema entered and visualized the entire tumor proves that the development of mucocele may occur even in the presence of bacteria.

The possibilities and the desirabilities of accurate preoperative diagnoses should be emphasized. With the facts elicited from the clinical study of the patient, the roentgen rays can be focused at the suspected area and be compelled to reveal its secrets.

Even though the duodenal-jejunal junction is usually hidden, there is always a period of time toward the end of gastric emptying when it can be studied. Observations at this time are of paramount importance.

Furthermore, the classification of mucocele must be changed from the category of those gastro-intestinal tumors which cannot be visualized by barium to those tumors which can. Here, too, the careful clinical study used as the guiding beacon in the interpretation of roentgenographic observations can and should more often furnish accurately correct preoperative diagnoses.

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FRACTURES OF THE HIP*

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AND
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Fractures in and around the hip joint arise from so many varying applications of force that we shall not attempt to describe the mechanism of such fractures at this time. Nor shall we repeat here the methods by which a diagnosis was arrived at in former days. These older methods not infrequently did much harm by additional trauma to the soft parts, including laceration of the capsular ligament sufficient to impair greatly its aid in maintaining reduction.

A patient in whom fracture of the hip is suspected should be transported as quickly as possible to a suitable hospital. This can be done without risk of additional trauma in most cases, if care is taken to apply a Thomas leg splint properly or a long side splint extending from the axilla to the foot. This side splint may be reinforced by placing a pillow between the legs, the uninjured as well as the injured leg being included in the bandaging, which assures temporary fixation.

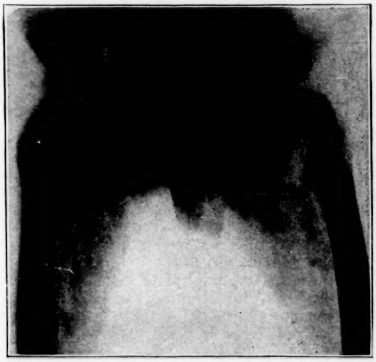

Fig. 3.—J. F., aged 12, had Perthes' disease of five months' duration accompanied by rarefaction of the head and neck with some absorption of the latter. The head had slipped half off at the epiphyseal line.

At the hospital the primary diagnosis should be made with the x-rays. No other means should be resorted to at any time. The film gives an accurate picture of the condition and, with this information at hand, proper methods can be instituted to obtain and maintain reduction. It is essential that information concerning the fracture be accurate, for on this accuracy depends the method chosen for treatment. Attempts to treat all fractures in and around the hip by the same means, and this is not uncommon, result in much needless suffering, great deformity in some cases and, not infrequently, utter failure to obtain union or a useful limb.

Whatever method is chosen for treatment, frequent checks on the position should be made with the x-rays;

* Read before the Section on Surgery, General and Abdominal, at the Eightieth Annual Session of the American Medical Association, Portland, Ore., July 10, 1929.

* Owing to lack of space, this article is abbreviated by the omission of a number of illustrations. The complete article appears in the Transactions of the Section and in the author's reprints.

for, just as with the primary diagnosis, the x-rays afford the only positive means of knowing whether reduction is being maintained. This is made much easier now, for most hospitals are equipped with some sort of portable or bedside unit with which shadows of the bones may be imposed on the films without disturbing the patient in any way, whatever apparatus is used for treatment.

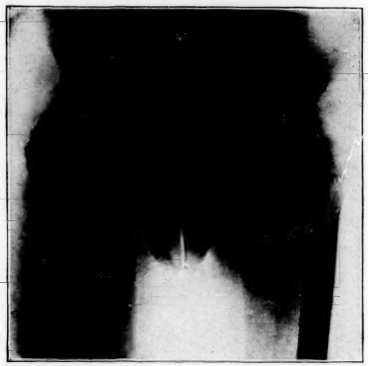

Fig. 5.—J. F., after one year. Recovery is complete, with normal range and no pain or limp.

TYPES OF FRACTURE

In considering these fractures, we shall take them up under six heads, roughly in the order of their interest and difficulty of treatment, discussing each fracture in detail as we come to it.

1. Fractures of the head of the femur in which the solution of continuity is entirely within the cavity of the acetabulum are quite rare. There is no displacement of the fragments, and rest in bed is the only treatment required. Pain, if there is any, may be controlled entirely by light traction to relieve the fragments from pressure. Weight bearing should not be allowed for at least six months.

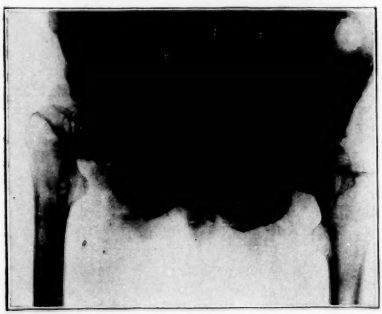

Fig. 6.—Fracture of the narrow part of the femoral neck in Mrs. H., aged 65.

2. Central dislocations or acetabular fractures, in which the head of the femur is driven through the acetabulum into the pelvis, without solution of continuity of the femur itself, require treatment if good results are to be obtained. Treatment of this condition requires prompt reduction by traction, in line with the normal direction of the femoral neck, accompanied by rotation and flexion until normal position of the head is obtained. Reposition of those fragments of the innominate bone which have been displaced inward should follow. This is best done by outward pressure of a finger in the vagina or rectum. By this means the bottom of the acetabulum is reformed.

Retention of the head of the femur in a normal position can be maintained by complete abduction, the greater trochanter then impinging on the rim of the acetabulum, if the latter has not also suffered fracture of its upper border. Retention of this position of abduction may be accomplished by a plaster-of-paris spica. If the rim of the acetabulum is injured, longitudinal and lateral traction must be depended on. In any case, longitudinal and lateral traction, properly applied and constantly maintained, will prevent displacement.

In these cases motion may be begun early, but weight bearing should not be permitted for three months.

Fig. 8.—Final position in Mrs. H. at the end of a year; function is normal, and there is no perceptible shortening, limp or pain.

Weight bearing should always be kept within the limits of pain.

3. In fractures of the shaft of the femur, close to the trochanters, with separation of the lesser trochanter from both the proximal and the distal fragments, there is slight tendency to rotation deformity except that caused by the weight of the limb. This is due to the absence of the pull of the psoas and iliacus, which, being inserted only into the lesser trochanter, exert all their power in pulling the lesser trochanter away from its former attachment. In these cases there is usually a good deal of comminution and much deformity due to overriding of the fragments.

A good result in such a case depends on treatment in the proper manner, or else the lesser trochanter will not unite or will unite as a long spur, because of its displacement by the pull of the muscles. This spur is very disabling, when it occurs, and every effort should be made to see that the lesser trochanter unites without its formation.

This makes it necessary that heavy traction be used with the thigh in pronounced flexion on the trunk, to

approximate the lower fragment to the lesser trochanter, the latter not being controllable by any external means, its position away from its base being in direct proportion to the pull exercised on it by the combined action of the psoas and iliacus. Moderate lifting and lateral traction are often required to overcome the displacing influence of the weight of the limb and the pull of the adductor muscles. This is to be applied on the

Fig. 13.—Fracture of the femoral neck in P. K., aged 8.

upper part of the thigh, as will be described later when fractures of the femoral neck are considered.

4. Intertrochanteric fractures in which the lesser trochanter is attached to the proximal fragment present peculiar difficulties in that the proximal fragment is sharply flexed, abducted and rotated outward to the limit by the action of the psoas and iliacus. The proximal fragment is so short that it is uncontrollable. This means that the distal fragment must be brought as close as possible to the position assumed by the proximal fragment.

Traction must be sufficient to overcome the displacing influence of muscular action as well as that of the limb's weight, which will be considerable because of the marked flexion that must be assumed. In addition, account must be taken of muscular spasm in estimating the amount of traction necessary. Enough must be obtained to prevent all shortening and overriding of the fragments.

No cast should be used in these cases at any time; certainly not until tolerably firm union has been secured, for no type of cast alone can maintain extension and prevent overriding of the fragments.

5. Fractures of the base of the neck, with or without fracture of the greater trochanter and with the lesser trochanter attached to the distal fragment, will always unite in some fashion or other if the patient has the vitality to live for six weeks, but often with great deformity. In those cases in which there is no impaction, the tendency to displacement is the same as in fractures of the narrow part of the neck.

The latter are quite the most satisfactory fractures in and about the hip to treat, for with proper traction healing is certain, in good position and without subsequent impairment of function.

Traction is applied in much the same manner as in fractures of the narrow part of the neck, to be considered next, but no reduction as such is needed, the traction accomplishing that when muscle spasm has been counteracted. Thigh support is needed to prevent the upper end of the distal fragment from dropping behind the proximal fragment. The position of the thigh must be varied according to the position which the proximal fragment assumes, it being more or less neutral because of the fact that it has no muscles attached to it and assumes whatever good or bad position it is forced into by the distal fragment and what fibers of the capsular ligament may be left. In this fracture there are not so many fibers of the capsular ligament, the fracture line being usually outside the attachment of the larger number. However, it will usually be found that, if sufficient traction is applied, this proximal fragment will follow along and the only care needed is to see that the foot is in line and remains so.

A cast, if applied in basal neck fractures, should never be put on until union is strong enough to prevent angulation of the new bone by the pull of the powerful muscles. In cases which cannot be treated by traction, this may be ignored and elastic traction applied with the cast, adhesive tape being applied first, followed by a cast which carries an intrinsic means of maintaining traction by heavy rubbers. This will prevent overriding of the fragments in a recent case and angulation in one which has been treated by traction but in which the callus is still soft.

6. Fractures of the narrow part of the neck of the femur have caused more trouble than all the others in this area. Several factors are involved. It is by far the most difficult fracture to reduce and maintain in reduction because of the small cross-section of the bones to be brought into contact, the unusual muscular forces tending to displacement, and the impossibility of controlling the upper fragment by external splinting. When it has been properly reduced and such reduction maintained, healing is uncertain because the fracture line passes through the area of least vascularity, at a point where the arteries from the trochanter, on the one hand, and from the ligamentum teres and head, on the other, become almost terminal. Healing may be impossible if marked atheromatous changes have occurred, which is likely, as this fracture occurs most often in the aged, in whom circulation difficulties are most likely to be present. In addition to the difficulties encountered in treating the fracture, the age of the patient, and the condition of the kidneys, lungs or heart add to the risk.

Fig. 15.—P. K., one year later; range and function normal.

TECHNIC OF TREATING HIP FRACTURES

Because of the factors just mentioned, as well as the gravity of the injury itself, it is essential that great care should be taken to avoid all unnecessary tax on the

patient's strength. Reduction without an anesthetic is therefore desirable, and is always possible with little pain and much less shock than otherwise; that is, unless an open operation is decided on. And open operation need never be decided on, for proper reduction and fixation without an operation can always be done if

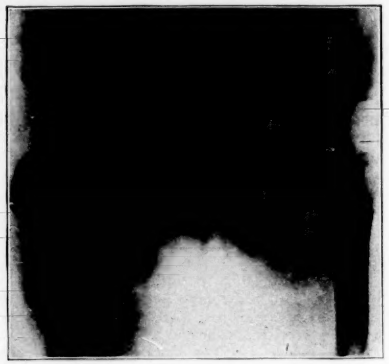

Fig. 16.—Fracture of the narrow part of the femoral neck in E. H., aged 56.

the surgeon gives proper attention to details. It is lack of attention to details that has left the proper care of such fractures in the hands of a few surgeons. In many years we have used a general anesthetic in only one case of fracture of the upper end of the femur.

Before any attempt at reduction is made, preparations should have been completed for maintenance of that reduction in the final form. That is, all manner of supplies should be at hand for immediate application, the bed should have been rigged, and the adhesive tape should have been applied.

Fig. 17.—E. H., three years later. There is no limp, and function is normal.

We shall describe step by step those things which we do in caring for a fracture through the narrow part of the neck of the femur.

One hour before we expect to arrive at the point of handling the leg, we give the patient one-fourth grain (16 mg.) of morphine and one one-hundredth grain (0.6 mg.) of scopolamine. This will give the necessary time to complete the arrangements: to adjust the bed if a Ford or other traction bed is available, or to apply the improvised apparatus to a regular bed if one has not a traction bed of sorts.

Having everything in readiness, we shave the entire leg and thigh, washing it then with benzine or alcohol and ether. When it is dry, strips of adhesive plaster, 2½ inches in width, two thicknesses having been previously placed together and held in readiness, are applied; the one on the outer surface extending from the hip, the other on the inner surface from the perineum, to 12 inches past the sole of the foot. Diagonal reinforcing strips of adhesive tape extend from near the ankle to the upper limits of the main adhesive strips. No encircling adhesive bands should be used. Especially should no adhesive straps cross the achilles tendon or near the upper margin of the patella. Gauze bandage should firmly bind this adhesive plaster on, at least until it has had time to become of itself firmly attached to the skin.

A foot piece, which is adjustable for flexion, extension, inversion and eversion, is secured to the adhesive side straps through keyed slots in the sides, that is, sides or edges of the foot piece, the tapes

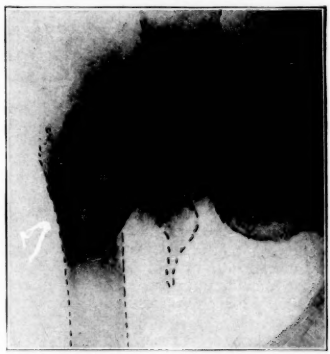

Fig. 21.—Trochanteric fracture with wide separation of lesser trochanter from each fragment in Mrs. R—s, aged 72.

being further secured against accidental slipping by the use of safety pins. A long plank, an inch thick, serves for the foot piece to slide on, a pulley at the distal end carrying the cord from the foot piece to the weight. This plank is firmly anchored to the bed to prevent slipping, and is long enough to furnish support for the entire leg and thigh. The weight attached to the cord varies according to the type of fracture from 20 to 50 pounds (9 to 22.7 Kg.). The weight of the patient, the strength of the leg muscles, and their condition, whether flaccid or spastic, control the amount of traction weight that must be used.

A metal piece of sheet iron, 4 or 5 inches wide and long enough to encircle the thigh two thirds of its circumference at the level of the perineum, is lined with felt and suitably curved to fit. On the outside of this a broad, double strip of adhesive tape is passed upward and outward to a cord, which is passed over a lateral pulley and carries a weight of 15 or 20 pounds (6.8 or 9 Kg.). The amount of weight in this case also varies for the same reasons as the weight used for longitudinal traction.

With all the apparatus attached or ready to put on, one may proceed with the reduction. The surgeon flexes the thigh on the trunk and the leg on the thigh, both to a right angle. An assistant has a firm hold on the ankle. A second assistant has an encircling hold on the upper part of the thigh close to the trunk, or pulls outward on the cord attached to the padded metal piece in this location.

The surgeon now makes steady traction on the flexed thigh in line with the long axis of the femur. Traction in this position at once clears the fragments from any contact with intervening soft tissues, the psoas, iliacus or capsule, and prevents these tissues from remaining in the bite of the fragments.

While one assistant makes longitudinal traction, with his hold on the ankle, the second pulls outward on the upper part of the thigh. The surgeon, continuing his upward traction on the thigh, rotates it sharply inward and then slowly decreases the flexion of the thigh and the leg until both are brought into full extension, at which point the permanent traction is attached and the assistants may loose their respective holds.

This maneuver is the most important part of the treatment, for if it is not properly done no reduction is possible. Second in importance is the application of sufficient traction to overcome all displacing influence of muscle action in producing shortening and flattening of the hip. In addition, the lateral traction must have sufficient upward direction to prevent the upper end of the lower fragment from dropping behind the proximal fragment or causing only a marginal contact between them.

Fig. 22.—Final result in Mrs. R—s. She is now 86 years old and walks as well as any one of her years and without limping.

This traction must be maintained without a moment's intermission until all tendency to muscle spasm is past and there is no deformity. With proper adjustment there will be no pain. Both legs are best placed in heavy abduction.

The sound limb may be secured in abduction by a clove hitch around the ankle of a wide, soft swathe of gauze. This may be released at any time for flexion of the leg, especially when it is needed to assist in raising the hips for the use of the bed pan.

These patients may be raised to the semisitting posture at any time for rest or for sponging.

Traction as described should be maintained from one to three weeks, when the patient will have passed the danger point. A cast may then be applied without the employment of a general anesthetic. Morphine and scopolamine will be sufficient and will cause much less shock.

This cast should take in the pelvis, the sound leg to the ankle, and the injured leg to the toes. The foot on the injured side should be in moderate internal rotation. Both legs should be abducted to the fullest extent, the sound side being used as a guide for the abduction of the injured one. A broomstick or other similar brace should be anchored in the plaster across the knees. This brace adds to the strength of the completed cast and is a great aid in handling the patient during the treatment.

This method gives absolute fixation of the fracture and is much more secure than the incorporation of only one leg and the trunk in the cast. It is also much more comfortable to the patient. It will be necessary to tighten the cast about the hips from time to time, as the patient shrinks, and this destroys the fit. This shrinking is more noticeable in obese patients.

Fig. 35.—Kind of abduction cast used by the authors in the later treatment of fractures of the femoral neck through the narrow part.

In such a cast, the patient may lie on the back or the face in comfort and, if a narrow bed is used, may be raised nearly to a sitting posture with a foot on each side of the bed.

With treatment in this manner, repair is certain if there is any reparative capacity in the neck of the femur.

Should union fail, and this will happen in a few cases no matter how skilful the treatment, excision of the femoral head should be done, the stump of the neck being placed in the acetabulum. This operation has a low mortality, gives a good weight bearing leg, with not more than 1½ inches of shortening, and the loss of time is distinctly less than with any other method. There is a range of motion three-fourths normal in three months, at which time it is possible to resume normal locomotion.

Fig. 36.—Proper method of applying longitudinal and lateral traction in heavy flexion and abduction in cases of fracture below and often through the trochanters with adjustable foot piece to control eversion, inversion and toe drop. In all cases in which the fracture line passes through the femoral neck the traction must be in complete extension of the thigh.

SUMMARY

1. Patients with fractures of the hip should be transported to and treated only in a hospital.

2. Diagnosis should be by means of x-rays alone to avoid the trauma of the older methods.

3. Treatment should vary according to the type of fracture in each case.

4. Traction, if used, should be constant throughout the entire period of treatment.

5. A general anesthetic need not be used except in the unusual case.

2616 Forest Drive.

ACUTE FRACTURES OF THE PELVIS

TREATMENT AND RESULTS IN ONE HUNDRED AND TWENTY-FIVE CASES *

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We are prompted to report this series of 125 cases of acute fracture of the pelvis largely because of the fact that we consider such injuries as becoming much more common, owing to the increasing general use of the automobile with its attending accidents.

There appears to be a wide divergence of opinion among members of the medical profession regarding the prognosis and treatment of fractures of the pelvis; some seem to believe that all fractures of the pelvis are more or less hopeless, and others appear to feel that such fractures are not to be considered seriously. Unless the profession as a whole can arrive at a conservative point of view between these extreme opinions there is no doubt that disastrous end-results in these cases will continue. We believe that these fractures treated properly, conservatively and rigidly will yield as brilliant results as those secured in any other major fracture in the body. We believe also that a standardized method of treatment is more nearly possible in this class of case than in any other type by the use of the overhead pelvic suspension frame with traction to the lower extremities.

The cases listed in this series occurred during the period from January, 1920, to July, 1928. The ages of the patients ranged from 19 to 62 with a general average of approximately 37½ years. The average stay in the hospital was sixty-five days, the longest period being 133 days. There were ninety-eight male patients and twenty-seven female patients; fifty-eight were white and sixty-seven were negroes. Seventy-one cases were the result of industrial accidents and fifty-four of civilian accidents.

It is interesting to note that pelvic fractures in women during the first three years covered by this series, that is, from 1920 to 1923, constituted only 10 per cent of the total civilian accidents. Since 1923, or in the last five years, fractures of the pelvis in women amounted to almost 50 per cent of the total civilian cases; 75 per cent of these pelvic fractures in women were received in automobile accidents, and, as far as we are able to judge, such fractures were definitely caused by trauma of less severity than that producing such fractures in men.

Complications in these cases, listed in their order of frequency, were as follows: blood in the urine; laceration of the urethral mucosa; extraperitoneal rupture of the bladder; rupture of the deep urethra; intraperitoneal rupture of the bladder; laceration of the perineum; rupture of the kidney; fracture of the femur; dislocation of the hip. Sixty of the total of 125 cases showed blood in the urine; of these, twenty-two patients had sustained rupture of the bladder, six intraperitoneal and sixteen extraperitoneal. Nine patients had either severe laceration or complete division of the deep urethra. In several of the severe cases the apparent tendency for formation of renal and bladder stones was very marked during the convalescent period.

There was a total of twenty deaths (16 per cent) in the series. Fourteen of these patients died within twenty-four hours following admission, all of whom had severe associated injuries, which were regarded as necessarily fatal. The remaining six patients died on the sixth, seventh, eighth, tenth, thirteenth and fifteenth

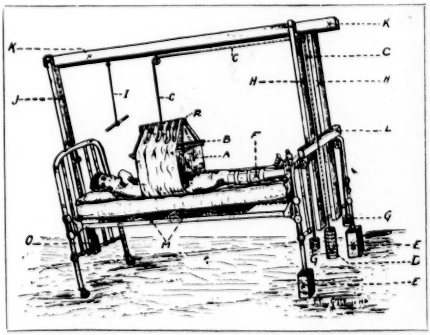

Fig. 1.—Overhead pelvic suspension frame with the muslin hammock and the wooden spreader: *A*, hammock, which is made of thick muslin, extending from the junction of the middle and upper third of thighs to the dorsolumbar region; average length, 6 feet; average width, 22 inches. *B*, wooden spreader, a rectangular affair made of one and one-half inch by one-half inch wood; every spreader should be made the width of each patient's pelvis; the length should extend 2 inches beyond the lateral borders of the hammock. *C*, main pull, which extends to top rail *K*, then along *K*, and then down to weights *D*, weights applied; the amount of the weight should be governed according to the weight of the area of the body where the hammock is applied; this amount averages about 35 to 45 pounds, or about one fourth of the patient's weight; the amount of weight applied at *D* is one-fourth less pull than on the muslin hammock (*A*). *E*, the 12 inch wooden blocks applied to elevate the foot of the bed, thereby causing countertraction to the traction on the legs. *F*, adhesive plaster applied to the legs for the traction. *G*, weights applied to legs; these average from 4 to 8 pounds. *H*, two-foot uprights, 2 by 4 inch wooden pieces; these uprights steady the frame; their average height is 5 feet 10 inches. *I*, hand hold for patient to shift himself around in bed. *J*, the head upright, a 2 by 4 inch wooden piece. The head and foot pieces should extend at least 3½ feet above the foot of the bed. *K*, the main cross wooden piece, 2 by 4 inches, with 2½ inch screw pulleys; this cross piece extends about 6 inches beyond the head and foot uprights; it is held in place at the head and foot with the aid of bolts and can be assembled easily; the length averages 8 feet 5 inches. *L*, the cross foot piece with 2½ inch screw pulleys; these can be moved in or out according to the amount of adduction or abduction that is demanded at the hips. *M*, fracture boards, 2 by 10, which are applied underneath the patient to prevent sagging. *O*, attachment of foot and head pieces to bed. *R*, wooden piece (2 by 2 inches and the width of the muslin hammock about 22 inches), around which one end of the muslin hammock is looped; buckles (about five or six) are also sewed on this loop; the other end of the muslin hammock has webbing straps sewed on to correspond to these buckles, and the ends of the hammock are buckled over the wooden piece *R*; the small cords extending from each corner of the wooden spreader are attached to the piece *R*; these cords allow for the raising or lowering of the spreader. Besides being useful for treating fractures of the pelvis, this frame in certain cases is also adaptable for treating fractures of the neck and shaft of the femur.

* From the surgical and orthopedic clinics, Employees' Hospital.

* Read before the Section on Surgery, General and Abdominal, at the Eightieth Annual Session of the American Medical Association, Portland, Ore., July 10, 1929.

days following admission. Three of these patients died of pneumonia; one of generalized peritonitis, following an intestinal rupture associated with the fracture; two had general septicemia, following injury to the rectum.

In three cases, peroneal nerve injury was present; two of these patients recovered entirely; one showed permanent disability, necessitating other procedures for relief. G. G. Davis has made a special study of these cases. He regards the peroneal nerve trauma as originally occurring in the lumbosacral cord at the pelvic brim. He advises massage, electrotherapy, foot-drop support, and the use of a stop joint at the ankle. He states that if after one year the nerve still shows symptoms of complete division or a permanent injury, the transplantation of the peroneus longus into the anterior tibial tendon by the Mayer technic is advisable.

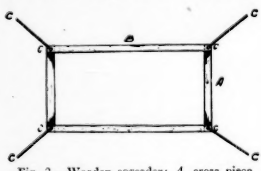

Fig. 2.—Wooden spreader: *A*, cross piece, which should be the exact width of the patient's pelvis. *B*, longitudinal piece, which should extend at least 2 inches beyond the lateral borders of the muslin hammock; pieces *A* and *B* measure 1½ by ½ inch. *C*, cords and their attachments; these cords are attached to the top of the wooden piece (fig. 1 *E*) which holds the muslin hammock. They allow for the raising or lowering of the spreader as demanded.

In a number of cases of fracture of the posterior ring and in the Malgaigne fractures we have noted marked edema of the extremities which persisted over a period of several months and in certain cases became a literally disabling disability. In two cases marked edema of the thighs was present with relatively minor fractures of the ilium near the sacro-iliac joint. Such complications, plainly the result of severe injury to the deep blood supply of the pelvis and neighboring soft structures, are sufficient to make one hesitant in giving an early prognosis in any type of pelvic fracture.

Only thirty-nine of the total series had a single fracture of the pelvis. The anatomic classification of the whole series is given in the accompanying table.

For further convenience the series is classified in three groups: first, single fractures in which the continuity of the weight bearing ring is preserved; second, multiple displaced fractures in which it is necessary to relieve the bones of weight until the fracture is consolidated; third, the double vertical fracture (Malgaigne's fracture) in which there is usually extensive dislocation of the whole pelvis. In the anterior ring fractures and marginal fractures our best results were obtained; in fractures of the acetabulum fair results were obtained; but in the fractures involving the posterior ring about the sacro-iliac joint our poorest results were secured, disability ranging from 25 per cent to practically permanent total disability. A definite determination of the exact percentage of disability peculiar to a certain classification as described here is practically impossible in a large number of these cases because many of them were multiple fractures which fall into two or more of the group classifications, and also because there is a wide variation in the severity of the soft part injuries.

Anatomic Classification of Fractures

	Left	Right	
Ala of ilium	20	6	
Crest of ilium	1	8	
Superior ramus of pubis	40	12	
Inferior ramus of pubis	3	1	
Inferior ramus of ischium	18	20	
Superior ramus of ischium	2	1	
Acetabulum	10	11	
Separation of symphysis			9
Definite sacro-iliac separation			9
Isolated fracture of ischial tuberosity			2
Double vertical fracture of pelvis (Malgaigne)			8
Fracture of the sacrum with associated pelvic fracture			3

Only about 60 per cent of the total series of patients had what we regarded as good anatomic position when discharged; but we are sure, from our observation, that excellent functional results are frequent in cases in which good anatomic position is by no means secured. Open reduction for correction of displacement of bony fragments was done in only two cases, and then only to relieve pressure of the displaced fragment on the rectum and bladder. It is our opinion that what appears to be a poor position of the fragments is by no means a constant cause for persistent pain and disability. We have frequently observed that in cases in which there was marked displacement of fragments there was less pain and less disability than in others in which excellent position was secured. This at times is difficult to explain.

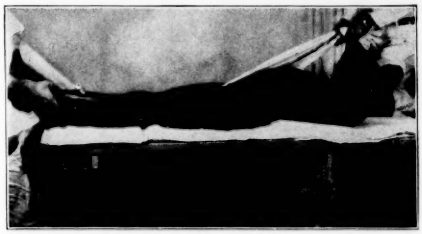

Fig. 3.—First maneuver for reducing a definite sacro-iliac dislocation when the ilium is dislocated upward on the sacrum: A folded sheet is placed in the groin on the uninvolved side and traction made upward toward the chest by an assistant while another assistant makes traction on the leg and thigh on the involved side.

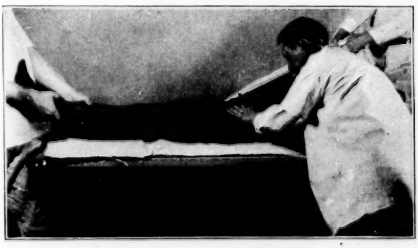

Fig. 4.—Second maneuver: While one hand of the operator's is placed posteriorly over the sacro-iliac region and over the posterior part of the crest of the ilium on the involved side, and the other hand of the operator's is placed over the superior and anterior part of the same iliac crest, a downward pressure (toward the feet) is then made. This pressure is made toward the feet at all times and is counterpressure to the traction on the uninvolved side. This manipulation should be done with great care and dexterity. An anesthetic should always be given. If the dislocation of the ilium is downward on the sacrum, the maneuvers are reversed; i. e., traction and pressure downward are made on the uninvolved side and upward countertraction is made with the sheet on the involved side.

The average number of days lost from work in both the civilian and industrial cases was 175. Forty-eight

of the civilians returned to their former duty; the remaining six are earning a livelihood at some gainful though less strenuous occupation. Forty-seven of the patients with industrial fractures returned to full duty and the remaining twenty-four are earning a living at some sort of lighter work. Estimated permanent disability in the latter cases ranges from 15 per cent of permanent total disability to practically a permanent

Fig. 5.—The third maneuver (not always necessary) for rotating the crest and body of the ilium, outward, in a certain type of case in which there is an inward rotation of the ilium in the sacro-iliac dislocations.

total disability. It is a noticeable fact that the majority of civilian patients returned to their occupations much earlier than did the industrial patients. This, of course, we attribute largely to the provisions of the compensation law.

TREATMENT

Immediately after admission to the hospital, provided the patient is not in too severe shock, roentgenograms are taken with great care. This is followed by painstaking physical examination to determine as quickly as possible the extent of soft part injuries. If the patient is in severe shock, appropriate measures are taken, followed by the securing of a specimen of urine, if necessary, by catheter. If gross blood shows in the urine, an immediate attempt is made to determine its source. A certain degree of judgment is necessary to determine the presence or absence of a rupture of the bladder or of a severe injury to the deep urethra. It is hardly necessary to say that, in gross ruptures of the

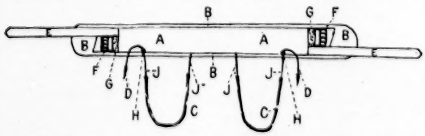

Fig. 6.—Type of belt used after muslin hammock has been removed: *A*, belt made of 3 inch webbing. *B*, felt which lines inner part of belt and is about one-half inch wider above and below the edges of the webbing. *J*, the laces, which have rubber tubes (*G*) around them; the laces extend from behind and then underneath the thighs around the groin on each side to the front (*H*); these laces enable the patient to keep the belt down in place. *F*, *E*, buckles and straps for fastening and tightening the belt. These belts should be measured for each patient and should always be kept below the brim of the pelvis and worn as tight as possible.

bladder intraperitoneally, the bladder will be empty and nothing will be secured by catheter, except possibly blood. In extraperitoneal ruptures of the bladder bloody urine is generally present, but within a short time there is apt to be definite evidence of suprapubic or perineal extravasation of both urine and blood. In those cases in which there is severe injury to the deep urethra the passage of a catheter is either difficult or impossible, and such instrumentation should be done with the greatest care, as it is possible to do great harm in even minor lacerations of the urethra.

If intraperitoneal rupture of the bladder is suspected, immediate laparotomy is performed as soon as the condition of the patient will allow, and if a rupture is discovered closure by suture is done, followed by intraperitoneal drainage. If the rupture proves to be extraperitoneal and in such a location as to allow of suturing, closure is done; but if exposure is difficult, simple drainage of the bladder and of the prevesical space is sufficient, supplemented by drainage by the urethra. Those cases showing gross lesions of the urethra in men are treated by immediate perineal urethrotomy. If the urethra is completely divided, an attempt is made at union, which, however, is not always possible; but if care is taken most excellent results can be secured. It is our opinion that drainage in every case should be resorted to before massive extravasations are allowed to occur. After-treatment of these cases consists in daily irrigation of the bladder, with as little instrumentation as possible. We believe that, if these cases are treated promptly and conservatively, most excellent results can be obtained in the vast majority. Such treatment should include observation for weeks or months after the original injury, directed toward the prevention of strictures of the urethra and the occurrence of chronic sinuses from the bladder.

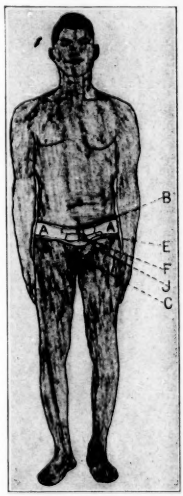

Fig. 7.—Application of the pelvic belt. This pelvic support is not sufficient when complications of lower spinal injuries are present. The letters have the same meaning as in figure 6.

Following careful examination and treatment of the complications, the patient is placed in bed and treatment begun with an overhead pelvic suspension frame[1] (fig. 1). Suspension is obtained by a canvas sling or hammock which extends from the upper third of the thighs to the lower dorsal region. This hammock acts as an immobilizing factor because of the lateral compression action on the pelvic girdle, the force being approximately equal to the body weight. This force is continually in action and, as relaxation of the muscles takes place, there is a constant disposition of the displaced fragments to fall into their natural position. As a general thing marked relief of pain is noticeable within the first few hours following the application of the pelvic hammock.

Suspension is supplemented in every case by traction on the legs and thighs, with about 15 to 20 degrees of abduction of the thighs at the hips. Abduction relieves the marked spasm of the strong adductors of the thighs and pelvis, prevents scissoring of the thighs, tends to pull the fragments back into place, and pre-

1. Conwell, H. E.: Overhead Pelvic Suspension Frame, in Scudder: Treatment of Fractures, ed. 10, pp. 167-168.

vents the limited abduction so commonly observed following these injuries.

The amount of weight on the hammock suspension is regulated by the weight of the body area which the hammock supports. It is our aim to use sufficient weight almost to counterbalance the weight of the patient but not enough to raise the patient completely from the bed. Weights used for leg traction vary from

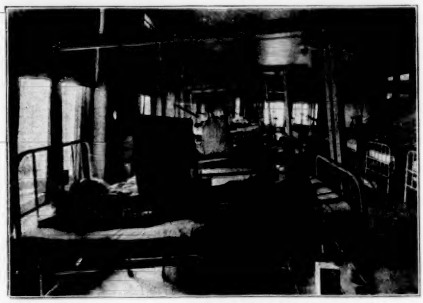

Fig. 8.—A fracture ward at the Employees' Hospital, Tennessee Coal, Iron and Railroad Company, Fairfield, Ala.

4 to 8 pounds (from 2 to 3.5 Kg.), depending on the size of the patient and the type of the fracture. Cases in which there is involvement of the posterior ring or sacro-iliac dislocation require more weight. It may be necessary to apply more weight on one side than the other, depending on the presence of overriding.

Leg traction is used in all types of fracture of the pelvis except in those showing an isolated fracture of the anterior-superior or anterior-inferior spines of the crest of the ilium. In these cases only the hammock suspension is used, supplemented by flexion of the knees obtained by the use of pillows. Flexion in these cases should be about a 20 to 30 degree angle at the hips.

A spreader (fig. 2) [1] is used in certain cases to prevent too great a lateral pressure. Lateral pressure of the hammock may at times cause an overlapping at points of the fracture, unless it is offset by the intelligent use of the spreader. The degree of lateral pressure can easily be governed by the raising or lowering of the wooden spreader. The spreader should be the exact width of the individual's pelvis, within the canvas sling. The use of the spreader should be routine treatment, except in cases in which a separation of the symphysis is present. In such cases a high degree of lateral pressure is necessary, and is obtained by the use of the hammock without the spreader.

The method of treatment described gives a high degree of ease and comfort to the patient, greatly simplifies nursing care, prevents a certain amount of muscular atrophy, allows for improved circulation throughout the pelvis, and allows easy access for care and dressings when the soft parts have been injured. In the simple uncomplicated cases it is rarely necessary to administer an anesthetic in application of the overhead pelvic frame and traction.

Successful reduction has been accomplished in several cases showing sacro-iliac dislocation, the method used being shown in figures 3, 4 and 5. This method demands great care and gentleness, as serious harm may result from too severe trauma, which under the deep anesthesia used can easily occur. The use of traction in these cases following reduction is indispensable.

We believe that these fractures should be treated by traction and suspension for an average period of at least forty-two days. At the end of this time the hammock is removed and the patient is allowed to move about in bed for another week. A pelvic belt (fig. 6) is applied immediately after the removal of the hammock. At the end of the seventh or eighth week the patient is allowed out of bed and begins weight bearing with the aid of crutches.

Gradual increase of weight bearing is determined by the amount of callous formation as shown by the roentgenogram and by the comfort of the patient as weight bearing is increased. In certain cases callous formation has definitely been hastened more rapidly as increased weight bearing is allowed, but this method is resorted to only in carefully selected cases.

As convalescence proceeds, daily hot tub baths and local heat are used. Patients are kept under close observation at the orthopedic outclinic until full return to duty is permitted. We feel that a most important point in the securing of results is the keeping of these patients under close observation for a long period.

Judgment should be used in forcing these men back to work. In our early experience we were inclined to return them to work as early as possible, but frequently found that after a few days at work they were inclined to develop muscular spasm of the back and thighs, which necessitated return to bed, with consequent lowering of morale. We attempt at all times to assure the patient that he has excellent prospects of recovery and that the long period of bed treatment is not because of

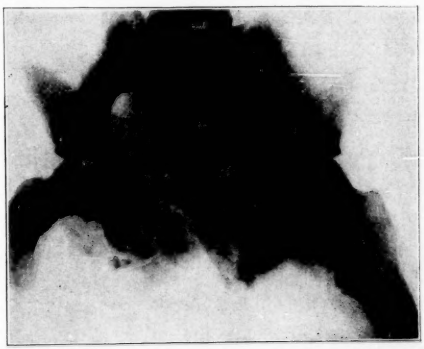

Fig. 9.—Multiple displaced fractures of the ischium and ilium, and marked separation of the symphysis, with a fracture of the right side of the sacrum. The patient was injured Sept. 10, 1922, had a rupture of the bladder and the deep urethra, and was practically moribund on admission to the hospital. Besides the pelvic fracture the patient had severe burns of the back, shoulders and abdomen. Suprapubic drainage was done. Convalescence was stormy. No improvement was accomplished as regards the position of the displaced fragments.

the expectation of a permanent disability but to enable the fractures to be immobilized long enough for union to take place and healing of the soft structures.

We consider that close cooperation between the general surgeon and the orthopedist is necessary in the

securing of best results in these cases, the general surgeon handling complications of the soft parts and the orthopedist that part of the work falling under his jurisdiction.

ABSTRACT OF DISCUSSION

ON PAPERS OF DRS. C. E. AND V. A. RUTH AND DRS. NOLAND AND CONWELL

DR. WALTER G. STERN, Cleveland: The importance of the subject of fractures of the pelvis lies chiefly in the injuries to the soft parts which usually consists of a rupture of the bladder or the first portion of the urethra; a temporary ileus may also complicate matters. Nerve lesions, usually paralysis of the peroneal nerve, are rare. As for the osseous lesions themselves, the best general treatment is that advised by the authors, but each case must be studied individually and the treatment varied as indicated. For instance, fractures of the pelvis in the neighborhood of the acetabulum must be repeatedly studied by stereoscopic anteroposterior and lateral roentgenograms, because at times the posterior half of the acetabulum may be fractured and, together with the head of the femur, may be carried backward; and the final result in unreduced cases is the same as in posterior dislocations of the hip joint. As far as manipulative or corrective treatment is concerned, it has been my experience that it has been almost impossible forcibly to drag the widely separated fragments of pelvic fractures together. Separation at the symphysis pubis has been treated by me nonoperatively by adhesive plaster, applied firmly to the ilium, with extension from both sides either with weights or with Fisher's platform springs—even to the point of pressure necrosis of the skin—without affecting the separation in the least. Operatively I have attached wires to either side of the symphysis or to large fragments in the manner of Steinman pins and have made traction in the same way as with adhesive plaster with the same results. Severe separations or dislocations, and also fractures vertically through the sacro-iliac joints, do not give rise to the usual symptoms of so-called sacro-iliac dislocation as long as there is a firm fibrous union at the symphysis. I have seen most unusual dislocations of one half of the pelvis followed by good functional results. The paper of Drs. C. E. and V. A. Ruth is almost too broad to allow of a brief discussion. It would seem that in their diagnosis they rely too slavishly on the roentgen ray. The roentgen ray is not infallible and has not yet replaced clinical knowledge, and to my mind the clinical diagnosis of fracture of the thigh and hip is not at all difficult. I cannot understand why they include acetabular fractures, which are fractures of the pelvis, intertrochanteric fractures and also those of the lesser trochanter, which usually heal no matter how they are treated and are really fractures of the shaft of the femur, in a discussion of hip fractures. Fractures of the neck of the femur in the aged demand relief from all pain and suffering and healing of the fracture. I do not agree with the Ruths that anesthesia is unnecessary in the manipulations and handling of fractures of the thigh, even by the double extension method such as they propose. We have had great success in our clinic both with spinal anesthesia and with local anesthesia.

Fig. 10.—Excellent functional result in case illustrated in figure 9, showing that good position of the pelvic fragments is not always necessary for good functional results. Attention is called to the excellent results and condition of the extensive scarring from burns of the back, left shoulder and left arm.

DR. P. H. KREUSCHER, Chicago: In fractures of the pelvis the seriousness of the injury depends not on the bony injury but on the harm done to the contents of the pelvic cavity. The x-rays throw little light on what has actually happened to the pelvic organs or the nerve trunks passing out of the pelvic cavity. Traction on the legs, indicated in most cases, must occasionally be omitted, especially in cases of fracture of the ilium. Traction here might draw the fragments apart rather than hold them together. I have often used a wide, close fitting belt, which can be laced firmly about the pelvis. On this belt, with the patient on the Bradford frame, traction can be made very satisfactory. In order to carry out the suspension method as described by the authors, I believe it is necessary to have an extensive fracture service, with capable nurses and interns who understand just what is necessary in the management of these cases. In fractures of the neck of the femur one has two definite objectives. One is the approximation and maintenance of the fragments; the other is the maintenance of the normal length of the extremity. It seems to make little difference just how this approximation is accomplished as long as the fragments are alined and held in position for a sufficient length of time to heal a fracture in that part of the neck of the bone in which the circulation is seriously interfered with. My greatest difficulty has been to gain control of the head and that part of the neck which remains attached to the head. Our problem has been then to bring the shaft or that portion of the bone over which one has control into line with that fragment over which one has no control. With good apposition and no interposition of tissue, I believe that 100 days will suffice to bring about a union. I am much impressed with the results I have obtained from the Whitman abduction method. Open operations I think are indicated in all cases which have not been seen immediately after the fracture. In these there is nearly always interposition of tissue and a formation of connective tissue over the ends of the fragments, insulating them, so that it would seem futile to attempt union by merely placing the ends in approximation. At least one of the slides which the Ruths showed as illustrative of Perthes' disease or possibly tuberculosis was a case of ordinary slipped epiphysis.

DR. A. W. ALLEN, Boston: These fractures of the pelvis that Drs. Noland and Conwell have reported are particularly interesting in that there is such a large group of end-results. Their method of treatment is excellent. It is generally understood that fractures of the pelvis are frequently associated with other injuries and for this reason carry a rather high mortality. In patients who survive, however, there is almost uniformly a good result. At the Massachusetts General Hospital for a period of five years, 900 records of end-results in fractures have been collected. During that period we had thirty patients with fractures of the pelvis, four of whom died. Of the remaining twenty-six, the end-results observed in eighteen were perfect anatomically, economically and functionally in two thirds. In the remaining third, although the result was not perfect, the patients were all able to earn a livelihood. As far as the fractures of the hip are concerned, we have had, during this period, sixty-four intracapsular fractures of the neck of the femur. Fifty-one of these were treated by the Whitman abduction

method. Of these fifty-one patients, 33.3 per cent died; in 44.5 per cent the results were classified as good, in 8.9 per cent as fair, and in 13.3 per cent as bad. Clinical union was obvious in twenty-four of the thirty-six patients that survived the treatment, while definite nonunion was present in six. Because of the high mortality, and the high percentage of unsatisfactory results in this particular fracture, it is our belief that some early operative procedure will probably be the method of choice in the future. Dr. M. N. Smith-Peterson of our clinic has devised a three-flanged nail which is very effective. It allows early motion and requires no constricting apparatus to interfere with circulation. It allows the patient to get out of bed in an extremely short time. He has not yet reported this work, but has treated twenty-five cases and so far the end-results are better than in our cases treated by the Whitman method.

DR. KELLOGG SPEED, Chicago: In pelvic fractures one sees immediately that the mortality lies in the complications. For that reason the physical examination and clinical observation of the patient should be done carefully. In a series of more than 300 fractures of the pelvis at the Cook County Hospital in Chicago dating back for some years, our mortality has been between 9 and 10 per cent, never much higher, never much lower. Most of that mortality lay in the complications. Sacroiliac separations are not serious unless there are bladder or urethral injuries, and should be reduced because they lead to the leg pain, backache and disability that require prolonged treatment and rest. I would invite attention to a certain group of fractures of the neck of the femur well reduced, held in Whitman's position, or in any other position one cares to use, in which the neck of the femur after several weeks of proper immobilization begins to dissolve and disappear. An accepted explanation for this absorption is not yet given. It may lie in a change of the p_H of the blood in that situation, or in a change in the circulation which leads to complete absorption and no effort at union in the bone.

DR. G. A. HENDON, Louisville, Ky.: My method of choice in the management of fractures of the long bones and fractures involving the neck of the femur is so diametrically opposed to any that have been presented here that I feel apologetic. I am quite sure that we have all labored under a delusion regarding the susceptibility of bone to infection. Bone resists infection with the same vigor and the same success that fascia does, and there is no more danger in operating on a fracture than there is in operating on a hernia if one does not embarrass the circulation of the adjacent soft tissue. By using a principle that is quite old and a material that is older still, the principle being the relationship between a square tenon and a round mortise, I have been able to make a key that securely locks the fragments of broken bones and retains them in alinement without the aid of external immobilization. By the use of this key, which is made from the cortex of beef bone, I have been able to treat, with uniform success, more than 100 fractures of the long bones without the use of any external immobilizing apparatus whatever, and with infection occurring in only two cases. One patient had diabetes, and in the other there was a serious rupture of operative technic. The method appeals to me particularly in the treatment of fractures of the neck of the femur which occur in people advanced in life. They are pitiful objects when encased in any sort of immovable dressing. The method has been used with success in the treatment of five gunshot fractures involving the humerus and the femur. I have used it in all kinds of compound fractures. There is no fracture of a long bone to which it cannot apply, except a pathologic fracture.

DR. C. E. RUTH, Des Moines, Iowa: I want to call attention to the action of this artificial psoas iliacus. When I make extension with the psoas iliacus taut across the anterior portion of the capsule of the articulation, the muscles act as powerful internal rotators. When the femur is flexed to a right angle with the trunk, the psoas and the iliacus are far above the neck of the femur, but in extension they are in contact. Suppose solution of continuity takes place in the neck of the femur. What happens? Instantly they become external rotators and the soft tissues are forced between the fragments. That is the reason so many surgeons do not get reduction, and when they get what they think is reduction it does not hold. Why operate if one can get a perfect reduction and hold it without operation? We showed that it is possible, if the details of the method we indicated are followed, to produce not a questionable but an absolute and perfect reduction, and the bones can be held absolutely and perfectly reduced provided the anterior portion of the capsular ligament is kept taut. That is the secret of the whole procedure, whether treatment is by the so-called Ruth, Maxwell, Whitman or any other method. But as to the Whitman method, I think it is next in order to this, the method that we use at the present time. Why try to fix an abnormally mobile fractured point against a dozen or more mobile points in the spinal column when the sound leg can be abducted to the limit and an absolute guide secured as to the degree one should abduct the other? They both can be fixed, and they will stay, provided the cast is kept fitting closely about the pelvis all the time. As to the case of Perthes' disease, the epiphysis slipped; it had been five months in slipping without injury. The adjustable footpiece slides on the board with the traction on. If the fracture of the shaft of the femur is just below the trochanters and there is flexion and complete eversion of the short fragments that cannot be controlled, what is to be done, especially if the lesser trochanter is broken off? Of course one has to flex the thigh heavily to get the lesser trochanter as near in contact with its normal place as it can be. If the fracture leaves the psoas iliacus attached to the lesser trochanter there is complete eversion of the upper fragment and heavy flexion, and it is necessary to put the thigh in flexion, abduction and heavy external rotation to the limit to correspond to the position assumed by the proximal fragment that cannot be controlled.

Special Article

THE DANGERS OF CARBON MONOXIDE POISONING AND MEASURES TO LESSEN THESE DANGERS

REPORT 1 OF THE COMMITTEE ON POISONOUS GASES OF THE AMERICAN MEDICAL ASSOCIATION *

DRAFTED FOR THE COMMITTEE BY YANDELL HENDERSON PH.D., NEW HAVEN, CONN.

Poisoning by carbon monoxide is one of the hazards of civilized life that can never be entirely eliminated. It is inherent in the use of fire. Automobiles, city gas, and the use of wood and other inflammable building materials in homes are also now essentials of civilization. But the hazard of carbon monoxide asphyxia which their use involves should be kept as low as practicable. Many of the fatalities from carbon monoxide now could be prevented. There is grave danger that during the next few years the number of these fatalities will be considerably increased.

CONDITIONS PRODUCING CARBON MONOXIDE

Whenever organic materials such as wood, coal, the various products of petroleum and other carbonaceous substances are burned, the combustion tends to take place in two stages. The first stage of the combustion produces the poisonous gas carbon monoxide (chemical symbol, CO). A second stage then produces the comparatively harmless gas carbon dioxide (chemical symbol, CO_2). In the first of these stages each carbon atom of the material unites with one atom of oxygen. The general character of the reaction may be roughly indicated by the equation: $2C + O_2 = 2CO$. In the

* The committee consists of: H. Gideon Wells, M.D., chairman; Yandell Henderson, Ph.D.; Paul Nicholas Leech, Ph.D.; Carey P. McCord, M.D., and L. R. Thompson, M.D. Reports on other topics in the field of its investigation are being drafted by other members of the committee and will be published subsequently.

second stage each molecule of carbon monoxide then unites with another atom of oxygen to form carbon dioxide ($2CO + O_2 = 2CO_2$). If the supply of air to the burning material is insufficient to supply the second molecule of oxygen, or if the temperature of the gas when it reaches the outside air is not sufficiently high, there is no second oxidation. Carbon monoxide is then liberated into the air in considerable amounts.

In a coal fire a slightly different process may occur. If the bed of coals is too deep for air to pass easily, or if the air supply is checked in any way, the combustion in the lower layer of red hot coal may indeed proceed to the stage of carbon dioxide; but this carbon dioxide in passing through the upper layers of coal gives up some of its oxygen, or, rather, it takes up more carbon and forms carbon monoxide ($CO_2 + C = 2CO$). This carbon monoxide can often be seen burning with a pale blue flame above a layer of black coal in a stove or furnace. In this flame some of the carbon monoxide is burned to carbon dioxide ($2CO + O_2 = 2CO_2$), but some usually escapes as the monoxide.

A third mode of formation of carbon monoxide occurs in the gas stoves used for cooking and in water heaters. The manufactured gas supplied in most cities where natural gas is not available usually contains about 20 per cent of carbon monoxide. But even when natural gas consisting of the relatively nontoxic gas methane is burned, carbon monoxide may be produced in the burner itself. This occurs not because of a deficient supply of oxygen from the air but because the flame of the burning gas is chilled when it comes near a cooking utensil or pipe containing cold water. The chilling stops the combustion at its first stage and large amounts of carbon monoxide may thus be produced and liberated. Cooks working over such stoves are sometimes more or less affected by the headache which low grade intoxication by carbon monoxide induces.

Occasionally in closed rooms such a stove or water heater may continue to produce carbon monoxide until the amount is sufficient to cause the death of persons sleeping in the room. When this accident occurs it is commonly explained as "not due to carbon monoxide but to exhaustion of oxygen in the air by the fire," which is found still burning. This explanation, however, is not correct. Both the slight effects and the deaths are due solely to carbon monoxide produced by the flame. If the oxygen were reduced from 21 per cent, the amount in air, to 16 per cent or a little lower, the fire would cease to burn; for 16 per cent oxygen will not support a flame. On the other hand, life is not seriously threatened by deficiency of oxygen until the reduction is about twice as great. In reality all such fatalities are therefore due to carbon monoxide, of which a very low concentration, even a few tenths of one per cent, is sufficient in time to cause death.

It is probable that most of the cooking stoves and heaters in this country in which gas is burned have this defect to a greater or less extent. The defect can be partially overcome by increasing the distance between the orifice of the gas burner and the cooking utensil or water pipe. They should be just above, not in, the visible flame.

In burning buildings, carbon monoxide is produced in large amounts. Although carbon monoxide itself is colorless and nearly odorless, it is the constituent of smoke which chiefly overcomes firemen. Similarly in fires and explosions in mines, particularly coal mines, the carbon monoxide that is produced is often the cause of more deaths than the explosion or fire itself.

In industry there is a rapidly increasing use of carbon monoxide from water gas as the starting point for the manufacture of such substances as methanol.

ASPHYXIATION BY CITY GAS [1]

The chief source of fatalities from carbon monoxide poisoning is city "illuminating" or "manufactured" gas. Natural gas, used in some cities, contains no carbon monoxide; but when the supply of natural gas is insufficient, manufactured gas is mixed with it or is supplied in its stead. Many of the fatalities from manufactured gas are suicides; but in addition this gas is the cause of many unintentional deaths in every large American city. Manufactured gas is produced in two ways: (*a*) by the destructive distillation of coal, producing "coal gas," containing about 7 per cent carbon monoxide; and (*b*) by blowing steam through red hot coal, thus producing "water gas," containing 40 per cent (theoretically nearly 50 per cent) of carbon monoxide. City gas is now usually a mixture of these two products, to which vaporized petroleum may be added, and contains about 20 per cent of carbon monoxide. Statistics show that, when city gas is chiefly "coal gas" and contains only a low percentage of carbon monoxide, the deaths from this cause are few; but when it is chiefly "water gas" and the percentage of carbon monoxide is high, the deaths caused by it are numerous; for instance, more than 500 a year in New York City.

The problem of decreasing the number of deaths from city gas is one not merely of sanitation but also of expense. The public objects strongly to paying more than a minimal rate for its gas. It generally costs more per cubic foot to manufacture gas of low carbon monoxide content than the gas of high carbon monoxide content now chiefly supplied. The difference in cost per heat unit of the two kinds of gas is much less than that per cubic foot. The chief assistance that the public can give toward introducing city gas of higher calorific value and lower carbon monoxide content is to approve and support the fixing of the price of gas on the basis not of the cubic foot but of the heat unit.

There are reasons for expecting that, unless counteracting measures are taken, the number of deaths from asphyxiation by city gas will increase considerably during the next few years. Gas is now used chiefly for cooking. A vastly increased use of gas for the heating of homes is developing. In spite of its greater expense, gas is beginning to displace coal and is competing increasingly with oil for domestic heating. Among the factors contributing to this development are the increasing price of the grades of coal used for heating homes, the demand of thinly dressed women for evenly heated houses, the rise in the wages of servants, and the convenience of automatic control of temperature. The larger quantities of gas that will be needed to heat houses will require higher pressures in the pipes in the streets and the use of reducing valves on the house supply. The seriousness of a break, leak or defective valve will be much greater than at present. Prevention of a corresponding increase in the number of persons and even entire families asphyxiated in their sleep is a problem demanding the most serious consideration.

1. Henderson, Yandell; and Haggard, H. W.: Noxious Gases and the Principles of Respiration Influencing Their Action, American Chemical Society Monograph Series, Chemical Catalog Company, 419 Fourth Avenue, New York City, 1927. Haldane, J. S.: Respiration. Yale University Press, 1922.

There is a possibility that, during the next few years, scientific advances may lead to the manufacture from cheap grades of coal of a gas low in carbon monoxide, high in calorific value and at a moderate price. Still more advantageous from nearly all aspects would be the development of methods for the manufacture of a fairly cheap liquid fuel from coal. Properly used, supervised and controlled, a gas of high calorific value and low carbon monoxide content need not involve a very great increase of fatalities, even when used in the enormous quantities that house heating will consume. Experimental investigation directed to the development of methods for the manufacture of such a gas, or a liquid fuel, deserves liberal financial support by the gas industry. The asphyxiation of even a few households by gas of high carbon monoxide content would largely dissuade the public from adopting gas for heating homes. Scientific investigation for the production of better and safer gaseous or liquid fuel will cost less than the laying of new, larger, stronger and tighter mains through the streets, as a gas of low calorific value will require.

Until a less poisonous gas is available, and even thereafter, the conventional "campaign of education of the public" should be continued; but, unless reinforced by regulations and their enforcement, it promises little help in this matter. The public already knows the lethal properties of city gas. It uses gas oftener than any other means for suicides. No official warnings can be as impressive as the reports of accidental deaths which the newspapers now publish almost daily in every large American city. Every one of us knows that each of these so-called accidents is due to the carelessness of some individual, usually the victim himself or one of his family. Yet each of us is so familiar with his own gas stove or hot water heater, used day in and day out for years without trouble, that he neglects the danger to his family and to himself.

It is not only individuals who take a chance. The public health authorities are even more reckless; for they face not a chance but a certainty. The number of accidents each year in a large city is almost as definite as the calendar, more each month in winter, fewer in summer. It is fairly certain also that if the whole number of these accidents were distributed into groups according to their common causes, each of these groups would show a quite definite mortality per hundred thousand of the population. There is the group in which asphyxiation results from flexible hose that is old and defective or is accidentally disconnected. There is the group in which the tea kettle boils over and puts out the fire. There is another group in which the hot water heater or bathroom stove is without a flue. There is still another group in which the quarter meter is started by one boarder after the light or stove has gone out in the room of another boarder. Each group takes its regular fraction of the fatalities and will continue to do so until a general change in conditions is enforced by the public health authorities.

The American Gas Association, representing the entire manufactured gas industry, has in recent years shown a commendable desire to assist in protecting the public from the dangers inherent in the use in homes of a gaseous fuel and the carelessness that results from common use. But there is still much that the public utility companies can do. They now generally sell only a good quality of appliances; but low grade and dangerous appliances are still sold in large quantities by other concerns. Much can be done toward excluding low grade appliances by enlisting the powerful influence of the fire insurance companies. The inspectors of the city fire department could act also for the board of health and report conditions dangerous to life, as well as those endangering property.

In addition, the public health bureaus, public service commissions, and the building and plumbing inspection services of cities should make and enforce regulations against the sale to the public of badly made and unsafe appliances. All agencies should help to stop the use of flexible gas hose. Even the best quality may be accidentally disconnected. In homes, gas should be burned only in appliances with fixed connections. The municipal building and plumbing bureaus should see to it that hot water heaters are connected to flues. As gas comes into use for heating homes, the furnaces and their connections should be subjected to periodic inspection. If quarter meters are to be used at all, they should be so connected that the common accident referred to cannot happen.

But the most important of all measures is that the gas industry shall aim to reduce the amount of carbon monoxide in city gas. If it were reduced by one half, the number of accidental deaths from gas would be reduced to a fourth, or less, of the present mortality.

EXHAUST GAS FROM AUTOMOBILES [2]

The internal combustion engine now used in automobiles, motor boats and airplanes gains its power from the explosion of a mixture of air and gasoline under pressure. The combustion occurring under these conditions is never complete. The exhaust gas always contains some carbon monoxide. The amount varies according to the proportion of air and gasoline vapor. In order that the motor shall act with maximum power and afford a "quick pick up" in city traffic, the carburetor of the engine must be set to supply a mixture rich in gasoline. The amount of carbon monoxide in the exhaust gas may then be as much as 7 per cent. With less rich mixtures the combustion is more nearly complete and the amount of carbon monoxide produced is correspondingly less. As a rough figure it may be stated that for each 20 horse power of the motor, when run on the usual mixture, one cubic foot of carbon monoxide is produced each minute. If this amount is discharged for even as short a time as five minutes into a small garage (cubic capacity of 2,000 cubic feet), the resulting concentration in the air rises to about a fourth of one per cent. Such an amount of this gas is sufficient to paralyze a man in a few minutes and to produce death in a short time if he is not discovered and removed from the poisonous atmosphere.

On account of this danger it is important that the health officials each year before cold weather begins shall publish in the daily newspapers, and send through the commissioner of motor vehicles or the state or local health officials to all automobile owners, warnings against starting the engine of an automobile before opening the garage doors. The memory of the public is short. Although many deaths have been reported from lack of this precaution, there are still persons who are unaware of the danger or who carelessly take the

2. Fieldner, A. C.; Henderson, Yandell; and others: Tunnel Gas Investigations—Report of the New York and New Jersey State Bridge and Tunnel Commission, 1921, pp. 91-140. Henderson, Yandell; Haggard, H. W.; Teague, M. C., and Prince, A. L.: Physiological Effects of Automobile Exhaust Gas and Standards of Ventilation for Brief Exposures, J. Indust. Hyg. **3**: 79-92, 137-146 (Aug.) 1921. Fieldner, A. C.; Henderson, Yandell; Paul, J. W.; Sayers, R. R., and others: Ventilation of Vehicular Tunnels, J. Am. Soc. Heating and Ventilating Engineers, Jan.-Dec., 1926, New York, February, 1927.

risk. They suppose that they will feel some effect which will warn them before they are overcome. But carbon monoxide gives no warning. The first effect is often a sudden muscular weakness which causes the victim to fall to the floor and renders him helpless. Unless he is discovered in time, unconsciousness soon follows and then death.

For large garages the city health department should make regulations, and the regulations should be enforced, against running the engine of any car and discharging its exhaust gas into the air of the garage for more than a very short time before it goes out. If this regulation is not enforced, no amount of artificial ventilation of the garage will keep the air healthful. To change the entire air of the garage every few minutes would require an enormous fan and would lower the temperature of the garage to that of the outside air during cold winter weather.

In repair shops, workmen are often seriously affected by inhalation of exhaust gas. The conditions are greatly improved in shops in which a flexible hose is connected to the exhaust pipe of each car under repair, so as to conduct the gas outdoors. The sanitary advantage of this device is now well established by experience. It should be required by law in all repair shops.

POLLUTION OF AIR IN STREETS

Pollution of the air in streets where the traffic is heavy is an increasing cause of complaint. Present conditions probably contribute to respiratory diseases. It is, however, the fumes of oil, dust and smoke that cause these complaints, rather than the invisible and nearly odorless carbon monoxide. Analyses of street air have shown that the amount of carbon monoxide is not sufficient to be distinctly poisonous. But it is sufficient to contribute to the state of fatigue of those who breathe this contaminated air throughout the day.

A device that has been used on bakery wagons and other small trucks with doors opening at the back, and also on some omnibuses, is the vertical exhaust. Observations were made on this device by Henderson and Haggard [3] which led them to suggest that its general use on taxi-cabs and other commercial vehicles might considerably decrease the contamination of the air with exhaust gas in congested traffic. These investigators consider that the practical value of the device should be given a large scale experimental test.

POISONOUS ACTION OF CARBON MONOXIDE [1]

The poisonous action of carbon monoxide is due almost entirely to the fact that it combines with the red coloring matter, called hemoglobin, in the blood. It is the hemoglobin that normally takes up oxygen as the blood passes through the lungs and gives this oxygen off again to the tissues of the body as the blood circulates through them. To whatever extent carbon monoxide has been absorbed from the air and combined with hemoglobin, the blood is to that extent limited in its power to take up and transport oxygen throughout the body. Thus the poisonous action of carbon monoxide is due to the deprivation of oxygen, or asphyxia, that it induces. The severity of the intoxication and the seriousness of the after-effects are determined both by the amount of carbon monoxide absorbed and by the length of time it remains in the blood; that is, by the duration as well as by the intensity of the asphyxia.

The attraction of hemoglobin for carbon monoxide is more than two hundred times as great as for oxygen. For this reason when air (21 per cent oxygen) containing even a few hundredths of one per cent of carbon monoxide is breathed for a considerable time, the hemoglobin of the blood becomes largely combined with carbon monoxide, and oxygen is correspondingly excluded. When a larger amount of carbon monoxide (a few tenths of one per cent in the air) is breathed, the gas is absorbed in correspondingly greater amount and rapidity. The combination of carbon monoxide with hemoglobin is, however, a loose one and, in the presence of sufficient oxygen, carbon monoxide may be driven out of the blood again. Accordingly, when fresh air containing no carbon monoxide is breathed, the oxygen of the air gradually displaces the carbon monoxide from the blood. If there has been much delay in displacing the carbon monoxide from the blood, ill effects may follow, especially an intense headache due to edema of the brain and occasionally impairment of the heart and nervous system. These effects are not due to a permanent retention of carbon monoxide in the body but are the secondary results of the injury done to the brain and to the heart while carbon monoxide was in the blood, thus temporarily excluding oxygen. They are the after-effects of asphyxia. The attraction of the "respiratory ferment" (Warburg) [4] for carbon monoxide is low in comparison to hemoglobin. Its part in carbon monoxide intoxication in man appears practically negligible.

Generally a person who has been partially asphyxiated by carbon monoxide, even to the point of complete unconsciousness, and who is resuscitated in time by the method to be described, recovers completely. Less acute but more prolonged are the effects of repeated exposure to small amounts of carbon monoxide, such as a mechanic in an automobile repair shop breathes day after day, or a workman at a blast furnace or gas plant, or a cook working in a small, badly ventilated kitchen with a defective gas stove. The results of such conditions are impairment of general health, nervousness, ill temper, and a condition similar to "over-training" in an athlete or to the "air staleness" of an aviator who has made many high ascents.

For such low grade chronic intoxication the only proper treatment, and all that is necessary, is the improvement of the conditions, especially the ventilation, under which the persons concerned live and work.

GAS MASKS [1]

Since the war the military gas mask has undergone development for industrial use until masks are now available which protect against all of the common noxious gases. It is important that every one using a gas mask should make sure that the mask is supplied with the correct absorbent for the particular gas. Each particular gas or type of gas has its own particular absorbent or catalyst. A mask not containing the requisite substance, or used too long, or allowed to get into bad repair, affords no protection, and even increases danger by false confidence. The so-called all service mask protects against practically all gases, but for only a short time. It contains some of each absorbent and catalyst, but the amount of each is small. The period of protection in each gas is therefore

3. Henderson, Yandell; and Haggard, H. W.: Health Hazard from Automobile Exhaust Gas in City Streets, Garages and Repair Shops: The Vertical Exhaust as a Practical Measure of Amelioration, J. A. M. A. **81**: 385-391 (Aug. 4) 1923. Also Bloomfield, J. J., and Isbell, H. S.: The Problem of Automobile Exhaust Gas in Streets and Repair Shops of Large Cities, U. S. Public Health Report no. 1217, March 30, 1928.

4. Warburg, O.: Ueber die chemische Konstitution des Atmungsferments, Die Naturwissenschaften **16**: 345 (May) 1928.

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much shorter than is that afforded by a mask with a full charge of a particular absorbent or catalyst.

A wet handkerchief or towel tied over the face is not a gas mask. It removes some of the irritant substances from smoke but gives no protection whatever against carbon monoxide. Even the best mask of the absorbent type gives no protection against an atmosphere deficient in oxygen. The common test for deficiency of oxygen in any atmosphere is that a candle will not burn in it, but this test should not be applied when the air may be contaminated with a combustible and explosive gas. A flame safety lamp is, however, free from this danger; it is the historic Davy lamp of the coal miner. The best test of the quality of an atmosphere is afforded by a mouse or a canary. Such small animals are overcome much more quickly than a man and thus give a timely warning of danger.

The safest form of mask, and the one to be recommended whenever conditions permit, is the so-called hose mask. In this device a long hose is connected at one end to the mask and at the other end to an air pump. An assistant outside the gaseous chamber works the pump so as to supply fresh air to the man wearing the mask. This type of mask gives perfect protection to the wearer even in atmospheres deficient in oxygen, as in silos, sewers, the hold of a ship, and other places where the oxygen of the air has been absorbed by some chemical process.

A third type of mask, the so-called self-contained oxygen apparatus, is heavy and liable to dangerous defects. It should never be used except by men specially trained, and by them only when neither of the other forms of mask will serve.

In using a gas mask or even the safer hose mask for the rescue of a person overcome by any gas, the rescuer should avoid risking his own life unnecessarily. If it is necessary to go down into a cellar or sewer, a rope should be tied around him and held by an assistant, so that he can be hauled out if he also is overcome.

RESUSCITATION [5]

The modern inhalational method of resuscitation is based on the fact that carbon monoxide asphyxia, if untreated, may continue in almost full force for a considerable time after the victim is removed from the poisonous atmosphere. Formerly the victim was often sent to a hospital in an ambulance. Sometimes he died on the way. More often, even after he reached the hospital, the carbon monoxide remained for a time almost undiminished in his blood, or was at first eliminated very slowly. Every minute increased the chance of fatal injury to the brain, or at least of a subsequent pneumonia or damage to the heart.

The object of the inhalational treatment is to eliminate the carbon monoxide from the blood as soon as possible. The victim should not be moved at all, or for only a few feet. If he is not breathing, artificial respiration by the prone pressure method should be started without a moment's delay and should be continued until spontaneous breathing returns, or until death is fully established. Spontaneous breathing is much more quickly restored if, while one operator does artificial respiration, another operator administers an inhalation of oxygen and carbon dioxide.

If the victim is breathing, as is often the case even in dangerously severe asphyxia, artificial respiration should not be given. But inhalation of oxygen and carbon dioxide should be immediately begun. If this mixture of gases is not available, oxygen should be used.

It is important to keep the patient warm. This precaution is often neglected, and with serious consequences. If he has to lie on the ground or pavement, coats or blankets should be put under him. This is more important than to put them over him. If he has been asphyxiated in a room, the poisonous atmosphere should be replaced with fresh but not cold air. He should not be handled roughly, as this may cause serious injury. After the return of spontaneous breathing, the inhalation should be continued until the patient's condition is virtually normal again, as indicated by a quiet pulse and the return not only of consciousness but of good humor.

Until the patient is fully restored to normal condition he should be prevented from making any exertion, even to sit up. The practice, formerly common, of making a partially resuscitated person walk may injure the heart. Men in the city fire departments sometimes strain their hearts by intense exertion after absorbing carbon monoxide. After a severe but short asphyxiation, as in the case of a workman overcome by gas in a manhole in the street or a member of the fire department overcome by smoke, resuscitation by the inhalational treatment is often complete within an hour or even less time. Provided the pulse and temper have returned to normal, the man can safely go back to work, and often does so.

The less the ambulance surgeon uses his hypodermic syringe on patients with carbon monoxide asphyxia, the better. The more completely he leaves them to the ministration of the rescue crews of the gas company and of the fire and police departments, the more likely the patients are to make a rapid and complete recovery. The rescue crews in general are trained for this particular procedure according to the carefully worked out directions of investigators and physicians especially experienced in this field.

Transfusion of blood in cases of carbon monoxide asphyxia, although not harmful, is certainly quite useless. It is performed only when the patient is still unconscious several hours after the asphyxiation. Most of the carbon monoxide, even in a patient not treated by inhalation, has by that time been eliminated from the blood. The continued coma is due to edema of the brain [6] and other postasphyxial injuries to the nervous system which transfusion of blood does not benefit. All efforts should instead be directed to assisting the patient by means of the inhalational treatment to ventilate the carbon monoxide out through his lungs as early as possible. His own blood is thus restored to normal condition and the harmful after-effects, which may otherwise follow asphyxiation, are in most cases completely prevented.

INHALATIONAL TREATMENT

Inhalation of oxygen and carbon dioxide was introduced by Henderson and Haggard [7] a few years ago and has received strong support in the valuable work of Drinker.[8] This treatment is now applied in thousands

5. Henderson, Yandell: Resuscitation from Carbon Monoxide Asphyxia, from Ether or Alcohol Intoxication, and from Respiratory Failure Due to Other Causes, J. A. M. A. **83**: 758-763 (Sept. 6) 1924.

6. Forbes, H. S.; Cobb, Stanley; and Fremont-Smith, Frank: Cerebral Edema and Headache Following Carbon Monoxide Asphyxia, Arch. Neurol. & Psychiat. **11**: 264-281 (March) 1924.

7. Henderson, Yandell; and Haggard, H. W.: Report 1 of Commission on Resuscitation from Carbon Monoxide Asphyxia to American Gas Association, J. A. M. A. **79**: 1137-1145 (Sept. 30) 1922.

8. Drinker, C. K.: The Efficiency of the Oxygen-Carbon Dioxide Treatment of Carbon Monoxide Poisoning, J. Indust. Hyg. **7**: 539 (Dec.) 1925. Heller, E.; Killiches, W., and Drinker, C. K.: The Evaluation of 5 and 7 per Cent Carbon Dioxide Mixtures as Respiratory Stimulants, ibid. **11**: 293 (Nov.) 1929. Drinker, C. K., and Shaughnessy, T. J.: The Use of 7 per Cent Carbon Dioxide and 93 per Cent Oxygen in the Treatment of Carbon Monoxide Poisoning, ibid. **11**: 301 (Nov.) 1929.

of cases each year by the rescue crews of the gas and electric light companies and of the police and fire departments in all of the larger and many of the smaller American cities. It has proved much more effective than such mechanical devices as the "pulmotor" and "lungmotor." These devices have now been almost entirely discarded in America, although the inhalators that have replaced them are still often erroneously called "pulmotors" in the newspapers. More than 2,000 inhalators are now in use, 300 of them in the metropolitan district of New York. Each rescue crew contains three or four men trained in resuscitation.

The inhalator usually contains a cylinder, or two cylinders, of oxygen under pressure with which 5, or better 7, per cent of carbon dioxide has been mixed. By means of a mask and suitable valves the victim of asphyxia is made to breathe this mixture of gases. The only considerable organization not using oxygen and carbon dioxide is the United States Bureau of Mines, which still uses oxygen alone.

Few hospitals have as yet equipped their ambulances with inhalators. Some of them claim that it is superfluous for more than one agency in a city to provide the means of resuscitation. But experience shows that if an ambulance without an inhalator is first called to a case, the delay in sending for the inhalator from the gas company or fire department may result in the loss of a life that could have been saved by prompt treatment. Every ambulance should carry an inhalator. Hospital interns should learn how to use it.

The reason for the use of oxygen, either pure or in a mixture, in these inhalators is that this gas tends to displace carbon monoxide from the blood more rapidly and effectively than does air, which contains only 21 per cent of oxygen. It is of critical importance, if the victim is to be restored to health and to suffer no after-effects from asphyxia, that the carbon monoxide shall be eliminated from the blood and exhaled through the lungs as quickly as possible. Every minute counts. Late inhalation is of relatively little benefit.

The reason for the use of carbon dioxide, with oxygen, is as follows: The carbon dioxide continually produced in the living body is the stimulus that causes normal breathing. It is particularly the carbon dioxide coming from the muscles which induces the deep breathing during and after physical exercise. On this principle as a basis, carbon dioxide is added to the oxygen in the inhalator to stimulate deep breathing. It thus causes a larger volume of oxygen to be inhaled and aids greatly in displacing carbon monoxide from the blood.

In persons who have inhaled only a moderate amount of carbon monoxide and whose breathing is therefore not depressed, carbon monoxide may be almost all eliminated within half an hour under inhalation of oxygen alone, as Sayers and his collaborators in the Bureau of Mines have found.[9] But in serious cases when the victims are so deeply asphyxiated that the breathing is greatly depressed or has ceased altogether, oxygen alone may be of little benefit, for the patient does not inhale it adequately. Oxygen is not a respiratory stimulant; it may even depress respiration. Carbon dioxide, on the contrary, is effective even in profound asphyxia in restoring full deep breathing. The addition of carbon dioxide to oxygen for the inhalational treatment of asphyxia is thus of the first importance for rapid resuscitation.

9. Sayers, R. R.; Yant, W. P.; Levy, E., and Fulton, W. B.: Effect of Repeated Daily Exposure of Several Hours to Small Amounts of Automobile Gas. Public Health Bulletin no. 186, March, 1929.

An additional reason for the use of carbon dioxide is that oxygen has no displacing action on poisonous gases, other than carbon monoxide, that are absorbed into the blood. City gas in addition to carbon monoxide contains other poisonous substances, particularly those of the benzene series; without these substances city gas would not burn with a luminous flame. The use of the inhalator is not limited to cases of carbon monoxide asphyxia. In modern industry many workmen are overcome by such toxic vapors as those of methyl alcohol, gasoline and benzene. Oxygen alone is of little benefit in such cases. But inhalation of carbon dioxide induces a rapid ventilation of the poison out of the body by way of the lungs.

Some other advantages of using carbon dioxide mixed with oxygen in the inhalational treatment of gas poisoning also deserve mention here: (*a*) Full dilation of the lungs after asphyxia tends to prevent a subsequent pneumonia.[10] Without this treatment, post-asphyxial pneumonia is common and has a high mortality. (*b*) Under asphyxia, the acid-base balance of the blood and tissues of the body is profoundly disturbed. Inhalation of carbon dioxide induces a rapid restoration of the blood alkali to a normal value.[11] (*c*) In cities where there are many rescue crews equipped with inhalators, as in Chicago and New York, these crews, with their inhalators, are frequently called on to treat new-born babies when the obstetrician or the midwife has been unable to effect resuscitation and start the child to breathing.[12] In such cases it is the stimulation induced by carbon dioxide on the respiratory center which, just as in asphyxiated adults, sets the machinery of breathing in operation.

The inhalational treatment is applicable to practically all forms of asphyxia and to all forms of gas poisoning. But for the pulmonary edema induced by irritant gases, such as chlorine, sulphur dioxide and "nitric fumes," oxygen should be used without carbon dioxide.

CONCLUSIONS AND RECOMMENDATIONS

Education of the public regarding the hazard of carbon monoxide in daily life now is not enough by itself to prevent numerous cases of asphyxiation. In addition, regulations and their effective enforcement are needed to remedy the common household conditions leading to asphyxiation, such as badly designed stoves, flexible tubing, the quarter meter, and lack of flues on water heaters.

The increasing use of city gas for heating homes may involve a large increase of fatalities both of individuals and of entire families unless an efficient inspection, supervision and control of household gas appliances is established.

City gas of high calorific value contains much less carbon monoxide than gas of low calorific value. It is in the interest of public health and safety that the amount of carbon monoxide in city gas should be reduced. To this end the price of gas should be based on the heat unit instead of the cubic foot. Scientific investigation for the development of less poisonous gas deserves liberal financial support.

The hazard to life of automobile exhaust gas in private garages should be called to public attention by annually repeated warnings, just before cold weather

10. Henderson, Yandell; Haggard, H. W.; Coryllos, P. N., and Birnbaum, G. L.: Treatment of Pneumonia by Inhalation of Carbon Dioxide, Arch. Int. Med., January, 1930.

11. Henderson, Yandell: Physiological Regulation of the Acid-Base Balance of the Blood and Some Related Functions, Physiol. Rev. **5**: 131 (April) 1925.

12. Henderson, Yandell: The Prevention and Treatment of Asphyxia in the New-Born, J. A. M. A. **90**: 583 (Feb. 25) 1928.

begins. The hazard to health in large garages and in repair shops should be controlled by sanitary regulations actively enforced.

For use in rescues and repairs, the hose mask is safer than the absorbent type of gas mask. Both these types of mask are much safer than self-contained oxygen apparatus.

Pulmotors, lung motors and other mechanical devices for artificial respiration should be discarded and replaced by general training in the prone pressure method of artificial respiration.

Carbon monoxide combines with the hemoglobin of the blood. It thus excludes oxygen and causes asphyxia. Inhalation of oxygen and carbon dioxide induces a rapid elimination of carbon monoxide. In many other forms of gas poisoning as well, stimulation of breathing by this inhalation accelerates the elimination of the toxic gas or vapor through the lungs.

The victims of carbon monoxide asphyxia should be treated as follows: (*a*) Immediate artificial respiration by the prone pressure method, if respiration has stopped. (*b*) Inhalation of a mixture of oxygen and 5, or better 7, per cent carbon dioxide—or, if this is not available, oxygen alone—continued until the pulse and temperature are normal. (*c*) Measures to keep the patient warm. (*d*) Prevention of any muscular exertion. (*e*) No transfusion of blood. (*f*) No hypodermic medication.

All rescue crews of the public service corporations and of the fire and police departments, and certainly all hospital ambulances, should be equipped with inhalators.

Council on Pharmacy and Chemistry

NEW AND NONOFFICIAL REMEDIES

THE FOLLOWING ADDITIONAL ARTICLES HAVE BEEN ACCEPTED AS CONFORMING TO THE RULES OF THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION FOR ADMISSION TO NEW AND NONOFFICIAL REMEDIES. A COPY OF THE RULES ON WHICH THE COUNCIL BASES ITS ACTION WILL BE SENT ON APPLICATION.

W. A. PUCKNER, Secretary.

CURDOLAC CASEIN-BRAN IMPROVED FLOUR.—A flour prepared from casein, carbohydrate-free bran, and soya bean, to which leavening and flavoring have been added, having approximately the following composition: protein, 38 per cent; fat, 9 per cent; carbohydrate, 4.5 per cent; other nitrogen-free extract (by difference), 36.99 per cent; fiber, 6.53 per cent; ash, 7.78 per cent; moisture, 4.98 per cent.

Actions and Uses.—Curdolac casein-bran improved flour may be used for the preparation of muffins or bread having a relatively low carbohydrate content and low food value, with bulk. The nutritive value of 500 Gm. corresponds approximately to 1,185 calories, of which 779 are yielded by protein, 414 by fat, and 92.2 by carbohydrate.

Manufactured by the Curdolac Food Company, Waukesha, Wis. No U. S. patent. U. S. trademark 145,646.

CURDOLAC SOYA-BRAN FLOUR.—A flour prepared from soya bean and a starch-free bran with a leavening mixture, having the following approximate composition: protein, 27.31 per cent; fat, 15.70 per cent; carbohydrate, 7 per cent; other nitrogen-free extract (by difference), 23.86 per cent; fiber, 8.92 per cent; moisture, 4.61 per cent; ash, 13.70 per cent.

Actions and Uses.—Curdolac soya-bran flour may be used for the preparation of bread and muffins for use in diets in which a comparatively low carbohydrate content is desired. The nutritive value of 500 Gm. corresponds approximately to 1,195 calories, of which 355 are yielded by protein, 722 by fat, and 14 by carbohydrate.

Manufactured by the Curdolac Food Company, Waukesha, Wis. No U. S. patent. U. S. trademark 145,646.

CURDOLAC BREAKFAST CEREAL.—A medicinal food prepared from soya beans blended with wheat products, including starch-free bran, having the following approximate composition: protein, 25.99 per cent; fat, 10 per cent; carbohydrate, 14.9 per cent; nitrogen-free extract (by difference), 14.04 per cent; fiber, 8.68 per cent; moisture, 3.94 per cent; ash, 12.40 per cent.

Action and Uses.—Curdolac breakfast food may be used as a hot food in diets in which a comparatively low carbohydrate content is desired. The nutritive value of 500 Gm. corresponds approximately to 1,297 calories, of which 532 are yielded by protein, 460 by fat, and 305 by carbohydrate.

Manufactured by the Curdolac Food Company, Waukesha, Wis. No U. S. patent. U. S. trademark 145,646.

CURDOLAC CASEIN COMPOUND.—A flour prepared from casein, vegetable fiber and a leavening mixture to which sodium chloride and gluside (0.00313 per cent) are added, having approximately the following composition: protein, 42.7 per cent; fat, 0.75 per cent; nitrogen-free extract (by difference), 42.35 per cent; ash, 5.6 per cent; moisture, 5.23 per cent; fiber, 3.36 per cent.

Actions and Uses.—Curdolac casein compound may be used for the preparation of carbohydrate-free bread, muffins, cake, etc., for use in diets in which a relatively low carbohydrate content is desired. The nutritive value of 500 Gm. corresponds approximately to 909 calories, of which 875 are yielded by protein and 34 by fat.

Manufactured by the Curdolac Food Company, Waukesha, Wis. No U. S. patent. U. S. trademark 145,646.

CURDOLAC SOYA FLOUR.—A flour prepared from the soy bean, having approximately the following composition: protein, 42 per cent; fat, 18 per cent; nitrogen-free extract, 30.5 per cent, of which less than 0.10 per cent yields carbohydrate in assimilable form; crude fiber, 7.86 per cent; ash, 4.1 per cent; water, 6 per cent.

Actions and Uses.—Curdolac soya flour may be used for the preparation of foods in diets in which a relatively low carbohydrate content is desired. The nutritive value of 500 Gm. corresponds approximately to 1,709 calories, of which 861 are yielded by protein, 828 by fat, and 20 by assimilable carbohydrate.

Manufactured by the Curdolac Food Company, Waukesha, Wis. No U. S. patent. U. S. trademark 145,646.

CURDOLAC WHEAT-SOYA FLOUR.—A flour prepared from soya beans, starch-free bran and a small proportion of wheat, with leavening and flavoring, having approximately the following composition: protein, 23 per cent; fat, 9.3 per cent; carbohydrate, 20.5 per cent; other nitrogen-free extract (by difference), 23.86 per cent; fiber, 6.02 per cent; moisture, 5.52 per cent; ash, 11.8 per cent.

Actions and Uses.—Curdolac wheat-soya flour may be used for the preparation of muffins, cakes, waffles, etc., of well balanced food value for use in restricted diets. The nutritive value of 500 Gm. corresponds approximately to 1,383 calories, of which 471 are yielded by protein; 427 by fat, and 420 by carbohydrate.

Manufactured by the Curdolac Food Company, Waukesha, Wis. No U. S. patent. U. S. trademark 145,646.

CURDOLAC SOYA-CEREAL JOHNNY CAKE FLOUR.—A flour prepared from soya beans and cereal products, to which leavening and flavoring have been added, having approximately the following composition: protein, 35.25 per cent; fat, 16.3 per cent; carbohydrate, 20 per cent; other nitrogen-free extract (by difference), 10.52 per cent; fiber, 6.22 per cent; moisture, 6.58 per cent; ash, 5.13 per cent.

Actions and Uses.—Curdolac soya-cereal johnny cake flour may be used in the preparation of muffins, cakes, waffles, etc., for use in diets relatively low in carbohydrate, designed for those who cannot use products made with bran. The nutritive value of 500 Gm. corresponds approximately to 1,901 calories, of which 722 are yielded by protein, 769 by fat, and 410 by carbohydrate.

Manufactured by the Curdolac Food Company, Waukesha, Wis. No U. S. patent. U. S. trademark 145,646.

CURDOLAC SOYA-BRAN BREAKFAST FOOD.—A medicinal food prepared from soya beans and a starch-free bran, to which has been added leavening, flavoring, gluside (0.0225 grains to the ounce), and oils without food value, having approximately the following composition: protein, 15.19 per cent; fat, 5.26 per cent; available carbohydrate, 17.8 per cent; other nitrogen-free extract (by difference), 50.39 per cent; fiber, 17.8 per cent; moisture, 2 per cent; gluside, 0.0006 per cent.

Actions and Uses.—Curdolac soya-bran breakfast food may be used in diets in which a low carbohydrate content is desired. The nutritive value of 500 Gm. corresponds approximately to 833 calories, of which 698 are yielded by protein, 107.8 by fat, and 26.6 by carbohydrate.

Manufactured by the Curdolac Food Company, Waukesha, Wis. No U. S. patent. U. S. trademark 145,646.

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SATURDAY, JANUARY 18, 1930

THE COST OF HOSPITALIZATION

Again and again in recent years hospital boards, administrators and executives generally have been stirred to resentment at the charge that the cost of hospitalization was excessive because of unbusinesslike administration, waste, and similar factors. The whole question of hospital costs is muddled for the simple reason that hospitals, dealing with the sick, with the poor, even with unconscious people, cannot contract on entrance, as does a hotel, for a certain type of service at a certain price. The hospital takes the patient, like a bride, for better or for worse, and from the hospital point of view it is usually for worse. The patient's delusions of grandeur on entrance are soon dissipated by rapidly mounting bills for a variety of necessary services, and he soon finds himself confronted with a situation demoralizing to both his pride and his pocketbook. Thus the patient with a private room decides to try temporarily the two, four or twelve bed ward and thereafter decides to suffer starvation after recovery rather than discomfort or minor annoyance during illness. These observations, trivial in the consideration of the well, loom large in the perspective of those who are sick.

During the last few years, as can be determined by consulting the files of any of the periodicals devoted to problems of hospital administration, there have been innumerable studies of hospital costs made by the hospitals themselves. Even discounting greatly the fact that these studies have been made by interested observers, it seems obvious that hospital costs have not risen proportionately to the cost of living in general, and not nearly proportional to the increased demands made on the hospitals by the changing status of labor, or by the advance in the science of the practice of medicine. More than two thirds of the hospitals in the United States now have fully equipped roentgen-ray and laboratory services, and more and more hospitals are constantly being supplied with fully developed departments for physical therapy.

A study made of bills rendered in one hundred hospitals by John A. McNamara and James S. Parker shows that the average bill for the first ten thousand full pay patients during the present fiscal year was $71.99, that the average duration of stay per patient in fifty-two of these hospitals was 11.04 days, and that the average hospital bill is much less than the average patient of moderate means spends for many of the luxuries that are common today. The very people who accumulate vast amounts for Christmas savings which are dispensed for trifles during a holiday week, who pay regular instalments for pianos, automobiles, radios, electric refrigerators, jewelry and fur coats because of the appeals made to them through advertising, find themselves unprepared when the illnesses which they should know are inevitable come on them. The answer to the question of the cost of medical care is not to be found in singling out the doctor, the hospital, the laboratory or the employer as the responsible party. The health of the human being is intimately associated with housing, food, transportation and fuel, and his care in disease is likewise associated with innumerable other economic factors. Perhaps when the answer is found the solution will be on the doorstep of the patient himself.

CARBON MONOXIDE: REPORT OF THE COMMITTEE ON POISONOUS GASES

At the Portland session, the House of Delegates instructed the Board of Trustees to constitute a Committee on Toxic Gases. The committee was to prepare reports on the extent of the menace of toxic gases and the steps that should be taken to protect the public health. It was also to study the industrial and domestic uses of such products as carbon monoxide, methyl chloride and "nitric gases."[1] The first report, drafted for the committee by one of its members, Dr. Yandell Henderson of the Department of Applied Physiology in Yale University Medical School, is published as a special article in this issue of THE JOURNAL.

Poisoning by carbon monoxide is one of the products of civilized life which, as Henderson emphasizes, can never be entirely eliminated. The hazard of carbon monoxide has increased so that scarcely a day passes that does not note the death of individuals or whole families due to closing the furnace damper too tightly, to allowing the coffee pot to boil over and extinguish the flames of the deadly "city illuminating gas," or to the flexible hose which becomes defective. Despite repeated warnings there are persons who still neglect to keep the garage doors open while the motor is running. Indeed, the committee warns, "There is grave danger that during the next few years the number of these fatalities will be considerably increased."

Years ago, when illuminating gas was made chiefly by destructive distillation of coal, it contained little,

1. Poisoning from Methyl Chloride used in Domestic Refrigerators, Current Comment, J. A. M. A. **93**: 288 (July 27) 1929.

if any, carbon monoxide. As the industry grew, water gas with a high carbon monoxide content was introduced without appreciation by the public of the greater danger involved in its use. Recently the national organization representing the gas manufacturers has shown a desire to assist in protecting the public from the danger inherent in using such a gaseous fuel in homes, as well as from the carelessness that results from its daily use. Some members of the industry, however, have not consistently kept before the public the dangers of gas that contains carbon monoxide, and how to avoid them. The committee points out in its first report that the most important of all measures is that the gas industry shall reduce the amount of carbon monoxide in city gas. This is a reasonable warning to the manufacturers. If the number of deaths from this source continues to mount, an aroused public may demand elimination of "water gas" altogether and the substitution of another type of gaseous or possibly liquid fuel. The gas companies are not alone responsible. Municipal authorities must inspect apparatus and minimize the use of defective apparatus that may result in carbon monoxide hazards. Finally, every person who uses gas should exercise diligence in following the warnings given not only for his own safety but for the safety of others.

Carbon monoxide poisoning from pollution of the air by automobile exhaust is difficult to control. There are, however, some preventive measures. The hazards to life by this means should be called to the attention of the public by repeated warnings annually, just before the onset of cold weather. The Committee on Atmospheric Pollution by Automobile Exhaust Gases, comprising representatives of various national organizations, points out that the research staffs of the automobile and gasoline industries can do much to lower the carbon monoxide output of a gasoline motor. This is a problem that bids fair to be solved. There is also the possibility of a device or catalyst whereby the carbon monoxide may be converted to carbon dioxide before it is finally expelled. At present, however, there is no scientific evidence to warrant the assumption that any such apparatus, serviceable under practical conditions, has been perfected. It is encouraging that work on such devices is going forward in various institutions.

Physicians should read particularly that portion of the committee's report dealing with the limitations of gas masks for removal of carbon monoxide. Of especial interest is the discussion on resuscitation. The committee condemns, as THE JOURNAL has condemned for years, the use of pulmotors, lungmotors and similar mechanical devices for artificial respiration. Inhalators, of course, do not come under this category; on the contrary, they should be part of every emergency equipment.

The recommendations of the committee for resuscitation after carbon monoxide poisoning in summary are that: (*a*) The victims should receive immediate artificial respiration by the prone-pressure method, if respiration has stopped. (*b*) They should inhale a mixture of oxygen and 5 per cent or, better, 7 per cent carbon dioxide until the pulse and temperature are normal. (*c*) The patient should be kept warm. (*d*) Muscular exertion should be prevented. (*e*) No transfusion of blood should be undertaken. (*f*) No hypodermic medication should be given.

HEALTH ASPECTS OF OLYMPIC GAMES

In connection with the Olympic games held in Amsterdam in 1928, special arrangements were made for physical studies of the athletes before and after participation in the contests. Physicians from various parts of Europe who had given special attention to the medical problems of athletics were invited to participate in the work. The results of their observations, which have just been made available in a German publication,[1] constitute a remarkable and interesting commentary on what athletics do to and for the human body.

An investigation of the sprinters, including the athlete who won both the 100 and the 200 meter event, revealed a tendency toward low pulse and low blood pressure. The same was true for the middle distance runners, who had an average pulse rate of 67 and average blood pressures of 119 systolic and 81 diastolic. The long distance and marathon runners had even slower average pulse rates than did the middle distance runners. The former had pulse rates around 61 and blood pressures of 116 systolic and 76 diastolic. The marathon runners had pulse rates averaging 58 and blood pressures averaging 123 systolic and 78 diastolic. The observers are convinced that there is evidently something more required than a first class circulatory mechanism to make a successful marathon runner. They venture the suggestion that it is something in the liver or possibly a psychologic factor which enables the marathon runner to plod along heedless of the distractions that waste some of the energy of the more emotional competitors. The marathon runners are in general older than the runners of the sprints and middle distances. Younger men seem to lack the stamina for feats demanding greater endurance. The same is true of other prolonged physical efforts, such as arctic exploring or mountain climbing.

The weight lifters are men of a different type from racers, including either runners or cyclists. Nine out of fifteen weight lifters had pulse rates over 80. Not one cyclist out of sixteen and only three runners out of seventy-seven reached this figure. Furthermore, the blood pressures were almost invariably higher for the weight lifters, with an average of 134 systolic and 90 diastolic. Five men in the group of weight lifters had diastolic blood pressures of 100 or over.

1. Buytendijk, F. J. J.: Ergebnisse der sportärztlichen Untersuchungen bei den IX. Olympischen Spielen in Amsterdam, 1928, Berlin, Julius Springer, 1929.

Of particular interest were studies of the hearts of athletes made before and after competition. These studies included all the usual methods of physical examination. The use of the x-rays indicated that the heart becomes smaller after prolonged physical exercise, apparently because of actual loss of material through the work of the muscle. Dr. Herbert Herxheimer, who has devoted himself for many years to study of the effects of exercise on the human heart, was more concerned with the ultimate effects of the sport on the heart than with the immediate effect. Through his examinations he confirmed his previous observation that such sports as cycling, rowing, long distance running and ski racing tend to cause permanent enlargement of the heart in relationship to the body size and weight. Such changes do not occur in every case, since there are certain types of constitution, which seem especially adapted to certain forms of work and sport, which do not react as does the average body. The electrocardiographic studies of the heart were made by Dr. S. Hoogerwerf of Leiden. These investigations showed that competitive races, boxing and wrestling place great demands on the heart. After the contests, men had extra beats of various portions of the heart, prolonged intervals in the conduct of the beat, and similar disturbances.

A beginning was made in investigation of the reaction times of various athletes. As might be expected, the quickness of the start, the response to unusual situations, the ability of the boxer and of the wrestler to protect himself depend on the reaction time. The few studies that were made indicated the desirability of more extensive investigation of athletes by this method.

Roentgen studies were made of the joints of athletes of various types. It was found that certain sports influence the formation of bone and of joints particularly. The greatest number of changes were found in the middle distance runners. Indeed, it has come to be realized by the athletes themselves that the middle distance races produce tremendous strains. The tennis elbow and the internal dislocation of the knee are forms of joint injury particularly frequent in athletes in various forms of sport.

The studies that have been made of the physiology of muscle indicate that lactic acid is formed in the process of muscle activity. Drs. I. Snapper and A. Grünbaum measured the lactic acid output in the urine and in the perspiration of athletes of various types. Football players, rowers and swimmers gave the greatest output and sprinters the smallest of any of the athletes studied. Trained athletes seldom have albumin in the urine after competition, except swimmers. Untrained athletes may show albumin after an extraordinary effort. Sugar was found in the urine of one football player and one water polo player who had not had sugar previous to the competition. When the athlete first begins to perspire, he gives off more lactic acid than after the perspiration has continued for some time. Sometimes the concentration in the perspiration is ten times as great as in the blood.

The games at Amsterdam were the first in which a specially selected group of experienced physicians were assembled to make serious studies of the effects of athletics on the body. The essays that have been collected by Dr. F. J. J. Buytendijk of Groningen indicate the importance of such observations for the selection of athletic types, for the limitation of competition, and for the general physical good of the athlete himself. With the experience gained by the first group, it should be possible to organize more perfectly for future Olympic games.

Current Comment

EXPERIMENTAL TRACHOMA

The etiology of trachoma has long been a stumbling block for investigators. There are many reasons for assuming that the disease is of microbial origin. Nevertheless, with the demonstrations during the last fifteen years that dietary deficiencies can bring about pronounced changes in the tissues which may even express themselves in disorders of the eye, such as the keratomalacia induced by lack of vitamin A, attention became directed to disturbed nutrition as a possible factor in the genesis of trachoma. It is, of course, readily conceivable and not untenable that membranes physiologically damaged by an avitaminosis may become more readily invaded by pathologic organisms. However, the pendulum of enthusiasm swung back again with the announcement by Noguchi [1] and others of an etiologic association of *Bacterium granulosis* with human trachoma. As late as 1922, Chandler [2] referred to the belief in the protozoan nature of the parasite of trachoma. In the affected portions of the eye, numerous tiny granules known as Prowazek's bodies have been reported as occurring, sometimes within the cells and even within the nuclei and at other times free in the serum, which were thought to be the cause of the disease. Chandler remarked that the fact that these bodies are sometimes found in other conditions has thrown doubt on their relations to trachoma. Noguchi's implications, on the other hand, were based on the frequent, probably constant, presence of *Bacterium granulosis* in the lesions and also on the fact that, when this micro-organism was inoculated into rhesus monkeys and chimpanzees by subconjunctival injection, characteristic granulomatous lesions, regarded by experts as identical with the typical lesions of human trachoma, were produced. Extension of these studies by Tyler [3] since Noguchi's untimely death have shown further at the Rockefeller Institute for Medical Research that

1. Noguchi, Hideyo: The Etiology of Trachoma, J. Exper. Med. (supp. 2) **48**: 1 (Aug.) 1928.
2. Chandler, A. C.: Animal Parasites and Human Disease, New York, John Wiley & Sons, 1922.
3. Tyler, J. R.: Transmission of Experimental Trachoma by Contact, Science **70**: 612 (Dec. 20) 1929.

Bacterium granulosis can be carried to and made to infect the uninjured conjunctiva of the monkey through ordinary contact secured by the caging together of inoculated and uninoculated animals. The demonstration of experimental contact infections represents a decided step in advance in the elucidation of the problems of human trachoma.

PSITTACOSIS

Last fall an outbreak of psittacosis was reported from Buenos Aires with two deaths. Other outbreaks have been reported recently in various parts of the United States and in other countries, varying from twenty-eight cases with five deaths in Hamburg, Germany, to single cases in other cities. Six cases were reported in New York and Yonkers; several cases and one death at Toledo; three cases at Warren, Ohio, and one case at Freeport, Pa. Surgeon General Cumming has detailed Dr. Charles Armstrong, an epidemiologist of wide experience, to conduct a field investigation of the individual cases reported and to trace the source of the infection, which has been ascribed in practically every case to association with recently imported parrots. In the epidemic of psittacosis in Paris in 1892, which caused forty-nine cases and sixteen deaths, the parrots that carried the infection had been imported from South America. The disease is attributed to an organism called *Bacillus psittacosis* or *Bacillus aertrycke*, but there is doubt whether this organism is the real cause of the pneumonia transmitted to man by parrots. Some investigators, Jordan says, attribute it to a special variety of streptococcus. *Bacillus psittacosis* closely resembles *Bacillus paratyphosus, Bacillus suipestifer* and the bacillus of mouse typhoid (*B. typhi-murium*). The disease is essentially a medical curiosity and need occasion little alarm among people of the United States. Since the symptoms resemble those of other infectious disorders, identification of the disease rests on isolation of the specific organism from both the patient and the suspected parrot. The development of cases at widely separated points suggests anew the reflection that it is no longer possible for any person or any nation to live in isolation and that the possibility of unusual disorders must be ever present in the medical mind.

"COMMON COLD" VACCINES

The first essential to the development of a logical vaccine against any infectious disease is a determination of the specific micro-organism or mixture of micro-organisms responsible for that infection. The nearest approach to a final proof that infections of the upper respiratory tract usually grouped under the term "common cold" are due to an unknown filtrable virus has been made by Dochez and his co-workers[1] of Columbia University. This unknown filter passer is not contained in any currently exploited "common cold vaccine." In previous communications the Columbia University investigators have reported that a typical "cold" syndrome can be induced in anthropoid apes by intranasal injections with filtrates from nasal washings from human patients. In all positive "takes" the gram-negative anaerobe described by Olitsky and Gates was cultivated. Final conclusions were not drawn from these studies, however, as unimpeachable controls during an epidemic season were impossible, many apparently normal persons conceivably being carriers. Controls, therefore, were delayed till summer months. The results of these summer tests were absolutely negative. "No change whatever [was] noted in the health of the [injected anthropoid apes] either constitutionally or with respect to the upper respiratory tract." Gram-negative anaerobes of the type described by Olitsky and Gates were cultivated from 75 per cent of the summer nasal washings. Unless it can be shown that there is an unusually virulent winter type of the Olitsky micro-organism, these observations "seem to lead rather strongly to the assumption that the type of upper respiratory tract infection under consideration is caused by [an unknown] filtrable virus."

1. Shibley, G. S.; Mills, E. C., and Dochez, A. R.: Further Consideration of Transmissibility of Human Upper Respiratory Infections (Common Cold) to the Ape, Proc. Soc. Exper. Biol. & Med. **27**: 59 (Oct.) 1929.

Association News

MEDICAL BROADCAST FOR THE WEEK

The American Medical Association Morning Health Talks and Evening Health Hints from Hygeia

The American Medical Association broadcasts daily at 10 o'clock, Central Standard Time, with the exception of Friday, when the health message is delivered at 9:45, over Station WBBM (770 kilocycles, or 389.4 meters).

The program for the week of January 20-25 is as follows:

January 20. "Control of Interstate Spread of Disease," by Dr. John M. Dodson.
January 21. "Organization and Accomplishments of the Health Section, League of Nations," by Dr. John M. Dodson.
January 22. "Noise," by Dr. R. G. Leland.
January 23. "Synthetic Sunshine," by Mr. H. J. Holmquest.
January 24. "Cosmetics and Your Skin," by Miss Mildred Whitcomb.
January 25. "Medicolegal Anecdotes," by Mr. T. V. McDavitt.

Evening Health Hints from Hygeia, 8 o'Clock, Central Standard Time

January 20. Good Air in Cold Weather.
January 21. The Family Medicine Chest.
January 22. How Infection Spreads Among Children.
January 23. Tuberculosis Still Rife in Rural Areas.
January 24. Exploding Notions About Hair.
January 25. Ships Use Wireless for Medical Aid.

THE DETROIT SESSION

Announcement of Exhibit under Auspices of the Section on Diseases of Children

The officers of the Section on Diseases of Children have appointed the following as members of the Committee on Section Exhibit: Thomas B. Cooley, M.D., Detroit; Wilburt C. Davison, M.D., Durham, N. C.; Tom Mitchell, M.D., Chairman, Memphis, Tenn.

The committee announces that it is desirous of having a creditable and enlightening section exhibit under the auspices of the Section on Diseases of Children. The topics suggested by the committee are:

(*a*) Relation Between Underweight and Malnutrition.
(*b*) Diet in Pediatric Practice.
(*c*) Selected Exhibits of Educational and Research Character.

The members of the specialty are asked by the committee to determine whether or not they have work suitable for exhibition

and, if so, to communicate with the committee chairman, Dr. Tom Mitchell, 376 South Bellevue Street, Memphis, Tenn. All applications must be made on the regular application form, which is the one required by the A. M. A. Committee on Scientific Exhibit. A circular letter giving information concerning this exhibit, together with the usual application blank, will be sent to those who have registered in the section during the last two years and to subscribers to the Jacobi Fund. Those who have not registered in this section but who are interested in such an exhibit may obtain a circular letter and application blank by sending the request to Dr. Mitchell. Applications should be filed not later than March 1 with Dr. Mitchell.

Detroit Hotels

Below may be found a list of Detroit hotels and rates for rooms. In the advertising pages of this issue of THE JOURNAL may be found this list together with an application form that can be used to secure reservations through the Subcommittee on Hotels of the Local Committee on Arrangements.

Hotels at Detroit

Name and Address	Single		Double	
	Without Bath	With Bath	Without Bath	With Bath
BARLUM ..... Cadillac Sq. and Bates St.	.....	$2.50-$ 4.00	.....	$4.00-$ 5.50
BOOK-CADILLAC ..... Washington Blvd. and Michigan Ave.	.....	3.00- 10.00	.....	5.00- 12.00
BRIGGS ..... 114 West Adams Ave.	.....	3.00- 4.00	.....	4.50- 7.00
DETROIT-LELAND ..... Cass and Gagley Aves.	.....	3.00- 5.00	.....	5.00- 7.00
FAIRBAIRN ..... Columbia at John R. Sts.	$1.50	2.50	$2.50	3.50
FORT SHELBY..... Lafayette and First St.	2.50	3.00- 7.00	3.50	4.00- 10.00
FORT WAYNE ..... Cass Ave. and Temple St.	.....	2.50- 3.50	.....	3.50- 6.00
GRANT ..... 2931 John R. St.	.....	2.00- 3.00	.....	4.00- 5.00
IMPERIAL ..... Peterboro at Woodward Ave.	.....	2.50- 3.50	.....	4.00- 5.50
MADISON-LENOX ..... Madison Ave at John R. St.	2.00	2.50- 3.50	3.00	3.50- 5.00
NORTON ..... Jefferson and Griswold	2.00	2.50- 3.00	3.50	4.50- 5.00
NORTON-PALMER ..... Windsor, Ontario, Canada	2.00	2.75- 3.00	3.50	5.00
PRINCE EDWARD..... Windsor, Ontario, Canada	.....	3.00- 5.00	.....	5.00- 10.00
PALMETTO ..... Hancock and John R. St.	.....	3.00	.....	4.00
ROYAL PALM..... 2305 Park Ave.	.....	3.00- 4.00	.....	4.50- 6.00
SEWARD ..... 59 Seward Ave.	.....	3.00- 3.50	.....	4.50
STATLER ..... Washington Blvd. and Park Ave.	.....	3.00- 8.00	.....	5.00- 10.00
STEVENSON ..... 46 Davenport Ave.	.....	2.50- 3.00	.....	4.00- 5.00
STRATHMORE ..... 70 West Alexandrine	.....	2.00- 3.00	.....	3.00- 4.50
TULLER ..... Park and Adams Aves.	.....	2.50- 5.00	.....	5.00- 7.00
WEBSTER HALL..... 111 Putnam Ave.	2.00	2.50	.....	3.50- 4.00
WOLVERINE ..... Wetherell and Elizabeth	.....	2.50- 4.00	.....	4.50- 7.00

Detroit has a number of splendid hotels and there should be no difficulty encountered in securing satisfactory accommodations if those who expect to attend the annual session of the American Medical Association, June 23 to 27, will send in their applications at the earliest possible time. The form that is printed in the advertising pages may be clipped and, when properly filled in, should be sent at once to Dr. William C. Lawrence, Chairman of the Subcommittee on Hotels, 1805 Stroh Building, Detroit, Michigan. Applicants for reservations are especially requested to include a second and a third choice in order that good accommodations may be assured if the desired reservation cannot be had at the hotel of preference.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST: SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

ARIZONA

Diphtheria Prevention Campaign.—The state board of health began a state-wide diphtheria prevention campaign several months ago. According to *Southwestern Medicine,* the city health officer of Miami and school physician has immunized more than 1,500 school children. The physician in charge at Sacaton reported that the white children attending the school are 100 per cent immunized and that the 200 Indian children attending the Pima Boarding School were expected to be given toxin-antitoxin soon. The school nurse reported two schools 100 per cent immunized in Pima County.

CALIFORNIA

Meningitis Breaks Previous Records.—According to the California Department of Public Health, the year 1929 brought more cases and deaths from epidemic meningitis than any year in the history of the state. From January to the end of August, 302 deaths from this disease were recorded. Thirty-two per cent of those who died, or 118, were Filipinos, Mexicans, Chinese and Japanese; of these, fifty-seven were Filipinos, thirty-nine Mexicans, sixteen Chinese and six Japanese; 218 men and eighty-four women died. Nineteen cases of epidemic meningitis were reported for one week in December.

Medical Lectures at Stanford.—The forty-eighth course of illustrated popular medical lectures at Lane Hall, Stanford University School of Medicine, San Francisco, began January 10 when Dr. Horace Gray spoke on "Diabetes, the Cause and Cure." The lectures, which will continue on alternate Friday evenings, are as follows:

"Some Sanitary Sins of the Orient," Dr. Alfred C. Reed, January 24.
"Dental Caries as Viewed by the Bacteriologist," Theodore D. Beckwith, Ph.D., February 7.
"What Medicine Has to Offer the Nervous Patient," Dr. Henry G. Mehrtens, February 21.
"Lessons from the Biography of Genius," Lewis M. Terman, Ph.D., March 7.
"Poisonous Animals," Karl F. Meyer, Ph.D., March 21.

Report of Milk Commission Approved.—At the annual meeting of the board of directors of the San Francisco County Medical Society, Dec. 10, 1929, the report of the milk commission on four projects of the scientific research committee, created by the Certified Milk Producers Association, was approved. These were: 1. Testing the pathogenicity of cultures of *Streptococcus epidemicus* isolated from bovine sources in interepidemic periods. 2. Experimental infection of cows with *Streptococcus epidemicus.* 3. Continuation of experiments on the infection of monkeys with *Brucella* organisms. 4. The study of the incidence of *Streptococcus epidemicus* in the human being, and of hemolyzing streptococci obtained from cow tonsils and from the hog. The Hooper Foundation will continue research on the presence of the streptococcus in the employees of certified dairies. In addition, Karl F. Meyer, Ph.D., president of the American Association of Medical Milk Commissions, is studying the undulant fever situation in California and the problem of keeping herds free from *Brucella abortus.* The milk commission continued the physical examination of all employees in dairies who handled milk produced in any way. This included a search for typhoid and diphtheria carriers every six months besides immunizing the men against these diseases. The United States is said to produce 120,000,000,000 pounds of milk a year.

Society News.—The section on industrial medicine of the San Francisco County Medical Society will be addressed, January 21, by Drs. Frank Sheehy and Felix L. Pearl on "Habitual Dislocation of the Shoulder" and "Electrical Shock," respectively.——Dr. Morris Fishbein, Chicago, editor of THE JOURNAL, addressed the San Francisco County Medical Society, January 7, on "The Cost of Medical Care."——The Los Angeles Surgical Society held a symposium on constipation, January 10; the speakers were Drs. Milton Tobias, Roland S. Cummings and Alfred J. Murrieta.——In the last two years, the state department of health has distributed 26,406 outfits for the prevention of blindness in babies, each consisting of two ampules containing two drops of 2 per cent solution of silver nitrate. The state law requires the department to distribute this product. ——The San Francisco Pathological Society was addressed, January 6, at the Southern Pacific Hospital by Drs. Harold

Brunn, on "Stenosis of the Esophagus (Probably Congenital) with Carcinoma Arising in the Dilated Esophagus"; William T. Cummins, "Multiple Myeloma"; Edward B. Towne, "Two Spinal Cord Tumors"; Alson R. Kilgore, "Adenocarcinoma Arising from Acini of Breast"; Adolphus A. Berger, "Ruptured Dissecting Aortic Aneurysm," and James F. Rinehart, "Bone Cyst"; Drs. DeLos S. Pulford, Jr., and Frederick Proescher presented specimens. Drs. Walter B. Coffey and John D. Humber gave a preliminary report on experiments with cortical suprarenal extract in malignant tumors.

COLORADO

Society News.—The Larimer County Medical Society was addressed, Dec. 4, 1929, by Dr. Gerrit Heusinkveld, Denver, on obstetrics, and Dr. Charles H. Platz, Fort Collins, on meningeal hemorrhage in the new-born. Dr. Kenneth D. A. Allen, Denver, exhibited roentgen-ray films showing the relation of the fetal head and pelvis.——Dr. James R. Jaeger, Denver, addressed the San Luis Valley Medical Society, recently, on "Injuries to the Skull and Its Contents."——The Boulder County Medical Society was addressed, Dec. 12, 1929, at Longmont, by Drs. James W. Fonda on "Some Health Observations of the Longmont Schools"; Frank R. Spencer, Boulder, "Importance of Sinus Disease to the General Practitioner," and James A. Matlack, "Diagnosis and Treatment of Cutaneous New Growths."

GEORGIA

Society News.—A course in obstetrics will be conducted in Thomas County, January 27-31, under the supervision of the state board of health in conjunction with the federal department of labor. Dr. James R. McCord, professor of obstetrics and gynecology, Emory University School of Medicine, Atlanta, will give the lectures, and moving pictures will be shown.——At the twenty-fifth anniversary and dinner of the Fulton County Medical Society, Atlanta, January 2, a talking movie of Truesdale's operation on diaphragmatic hernia was presented.

ILLINOIS

Society News.—Dr. Frederick O. Fredrickson, Chicago, president of the Illinois State Medical Society, was guest of honor at the January 3 meeting of the Madison County Medical Society, Edwardsville. Dr. Fredrickson spoke on "The Control of Medical Practice."——Dr. William A. Newman Dorland, Chicago, addressed the Peoria City Medical Society, January 7, on cancer.

Personal.—Dr. H. E. St. Antoine has been transferred from the veterans' hospital at American Lake, Washington, to veterans' hospital number 105, North Chicago, where he succeeds Dr. Albert E. Brownrigg, who has been assigned to the veterans' hospital in Philadelphia.——Dr. Royal W. Dunham has resigned as medical director of the Ottawa Tuberculosis Sanatorium, Ottawa, effective January 5, and moved to Chicago.

Chicago

Society News.—At the twenty-third annual convention of the National Canners Association, Chicago, at the Stevens Hotel, January 20-24, Dr. Morris Fishbein, Chicago, editor of THE JOURNAL, will speak on "Food Fads and Fallacies."——The Chicago Council of Medical Women will be addressed at the Medical and Dental Arts Club, February 7, by Drs. Helen V. McLean and Barbara M. Nickey, on "Obstetrics in China" and "Public Health Work in India," respectively.

Miller Refused New Trial.—Judge Hopkins of the criminal court refused a new trial, January 5, to W. H. H. Miller, former head of the state department of education and registration. In the same court, Dec. 10, 1929, Miller was found guilty of conspiracy to sell medical and dental licenses to persons not licensed to practice, and was sentenced to seven months and one day in the county jail and fined $2,000 (THE JOURNAL, Dec. 14, 1929, p. 1894). Miller's attorney was given a limited period in which to file an appeal.

Dr. Adler Goes to California.—Dr. Herman M. Adler, state criminologist and director of the Juvenile Psychopathic Institute, has accepted a professorship of psychiatry at the University of California, Berkeley, and an appointment as consultant to the California State Department of Institutions. Dr. Adler, who was assistant professor of psychiatry at Harvard University Medical School, came to Chicago in 1916 to study the facilities in Cook County for the detection and care of mental diseases, under the auspices of the Rockefeller Foundation and National Committee for Mental Hygiene. Dr. Adler's assistant for several years, Dr. Paul L. Schroeder, has been designated by the governor to succeed him.

Chicago Heart Association.—At the annual meeting of the Chicago Heart Association, January 14, heart disease as a cause of death in Chicago was said to have increased more than 21 per cent in the last ten years. During 1929 there were 7,300 deaths due to heart disease and 7,208 cases treated at seventeen dispensaries in Chicago; the total of cases included 2,284 children. Among the speakers at the meeting were Dr. Irving S. Cutter, dean of the Northwestern University Medical School, and Dr. Morris Fishbein, editor of THE JOURNAL. Dr. Fishbein was elected one of the governors of the association. Dr. Walter W. Hamburger presided. It was announced that ground will be broken for the La Rabida Sanatorium in Jackson Park, June 1. This will be a 175 bed hospital for convalescent children.

KENTUCKY

Kentucky Needs Physicians.—The report covering an audit of the state board of health predicts, among other things, that medical courses must be established in some school supported by the state if the shortage of physicians in Kentucky becomes more acute. The report says that there are now probably less than 3,000 physicians in the state. The effect of the shortage is made worse by the fact that a large percentage of the physicians are located in large cities, leaving the rural districts in need of necessary medical aid. The differences existing between standard medical education as defined by the statutes and that defined by the medical schools were pointed out.

LOUISIANA

Society News.—The Shreveport Medical Society was addressed, Dec. 3, 1929, by Dr. Guy A. Caldwell on "Advantages of Collective Advertising."——The Fifth District Medical Society, Monroe, was addressed, Dec. 10, 1929, among others, by Drs. Daniel M. Moore on "Use of Deep X-Ray Therapy at the Menopause"; Bunnie M. McKoin, "Penial Sores and Injuries"; Courtland P. Gray, "Injuries and Infections of the Hand"; Joseph P. Brown, "Removal of Foreign Bodies from the Bronchus"; George W. Gaines, Tallulah, "Clinical Use of Mercurochrome," and Broox C. Garrett, Shreveport, "Diverticulitis of the Colon with Special Reference to the Sigmoid."

Health at New Orleans.—Telegraphic reports to the U. S. Department of Commerce from sixty-four cities with a total population of 30 million, for the week ending Dec. 28, 1929, indicate that the highest mortality rate (24.8) was for New Orleans, and the mortality rate for the group of cities as a whole, 13.1. The mortality rate for New Orleans for the corresponding week last year was 36.3, and for the group of cities as a whole, 18. The annual rate for sixty-four cities for the fifty-two weeks of 1929 was 12.6, as against a rate of 13 for the corresponding weeks of 1928. Caution should be used in the interpretation of weekly figures as they fluctuate widely. The fact that some cities are hospital centers for large areas outside the city limits or that they have a large negro population may tend to increase the death rate.

MAINE

Society News.—The Portland Medical Club held its fifty-second annual dinner, Dec. 3, 1929. According to the *Maine Medical Journal*, this is the oldest local medical club, founded in 1876 by Dr. Erastus Eugene Holt, Sr., who is still living, and a small group of Portland physicians. Dr. James A. Spalding spoke on "Success in Medical Practice." The retiring president, Dr. Lester L. Powell, spoke on "Health and Old Age." Dr. John H. Allen was elected president; Drs. Isaac M. Webber and Julius C. Oram, vice presidents, and John R. Hamel, secretary.——The Cumberland County Medical Society held its twenty-third annual meeting, Dec. 13, 1929, at Portland. Dr. George W. Van Gorder, formerly associate professor of surgery, Peiping Union Medical School, Peiping, China, spoke on "Surgery in China."

MARYLAND

Report on Rabies.—The number of persons treated for rabies in Maryland in 1929 was 226, or more than five times the number (forty-one) treated ten years ago; in 1928 the number treated was 161. Of those treated last year, 167 were cared for by the state board of health, and fifty-nine by family physicians. There were 437 additional applicants who were given emergency aid for whom the Pasteur treatment proved unnecessary, as the animals inflicting the injuries were found to be not rabid. In 1915 the Pasteur treatment was taken over by the state department of health; until 1921, all treatments were given in Baltimore and patients from different parts of the state had to spend the three weeks there to complete the treatment. A change occurred then which made it possible

for patients to be treated at their homes by family physicians; another change in 1928 reduced the number of treatments necessary from twenty-one to fourteen. The Pasteur treatment for rabies has been given to 1,354 persons since 1915. There have been 2,500 additional applications for emergency treatment in the past ten years from persons injured by stray animals not rabid. The number of animals, either rabid or vicious, involved has ranged from less than forty in any one year to 148 in 1929. The number of rabid animals for the ten year period included 462 dogs, twenty cats, three cows, three calves, one horse, one mule, one sheep, one pig and one gray squirrel.

MASSACHUSETTS

Hospital Changes Name.—Members of the corporation of the Massachusetts Homeopathic Hospital, Boston, recently voted to change the name of the institution to the Massachusetts Memorial Hospitals. In its fifty-six years' service, the former fourteen bed hospital has grown to be a hospital of 530 beds. A program of expansion is planned which will include removal to a new location on Commonwealth Avenue Heights and the construction of new buildings.

Personal.—Dr. Harris P. Mosher, professor of laryngology, Harvard University Medical School, gave the Semon lecture before the Royal College of Physicians and Surgeons, London, Dec. 5, 1929, on "Pathology of the Lower End of the Esophagus." Dr. Mosher was awarded the Semon medal at this time. ——Dr. Everard Lawrence Oliver has been appointed chief of the combined departments of dermatology and syphilology at the Massachusetts General Hospital.

MICHIGAN

Personal.—Herbert H. Dow, Midland, was presented with the Perkins medal, January 10, at the Chemists' Club, New York. The award was made because of "his development of improvements in the production of chlorine, magnesium and numerous other chemical materials."

Appointments to State Board.—Governor Green announces the appointment of Dr. Theron G. Yeomans, St. Joseph, to succeed Dr. George L. LeFevre, Muskegon, as a member of the state board of registration in medicine; Dr. William F. English, Saginaw, succeeds Dr. Guy L. Connor, Detroit, and Dr. Charles A. Teifer, Muskegon, succeeds Dr. Albertus Nyland, Grand Rapids. Dr. Nelson McLaughlin, Detroit, and Dr. William A. Lemire, Escanaba, were reappointed.

Society News.—Dr. Arthur J. Cramp, director, Bureau of Investigation, American Medical Association, Chicago, addressed the Calhoun County Medical Society, January 7, at Battle Creek, on "Patent Medicines and the Public Health."——The new state plumbing code, prepared by the Michigan Department of Health, was given a public hearing in December, at the state capitol. A law providing for the licensing of master and journeymen plumbers in Michigan was passed in 1929. Since Jan. 1, 1930, an examination has been required before a license is issued. ——It is reported that a recommendation will be made to the city commission of Grand Rapids that all fees paid to the city health department for certified copies of birth and death certificates be turned over to the city treasurer. The custom of the registrar retaining the fees was established in Grand Rapids years ago, although fees for other types of duplicate papers were turned over to the treasurer.——The Children's Fund of Michigan presented its second pediatric clinic on diseases of infancy and childhood, January 15, under the auspices of the graduate department of the University of Michigan and the state medical society. Dr. David J. Levy, Detroit, spoke on the cyanosis, hemorrhage and feeding of the new-born, followed by a round table discussion: Dr. Guy L. Kiefer, Lansing, "Prophylactic Methods in Communicable Diseases"; Dr. Grover C. Penberthy, Detroit, "Diagnosis and Treatment of Osteomyelitis" and "Treatment of Empyema," and Dr. Edward C. Davidson, Detroit, "Tannic Acid Treatment of Burns of Children," with slides and a demonstration of technic.

MISSOURI

Hospital News.—The Missouri Baptist Hospital, St. Louis, has erected a six story addition, costing $375,000, to house the bone and joint surgery department. The new building increases the bed capacity of the hospital to 500.

Personal.—Dr. Junius W. Bingham, Westplains, has been appointed health officer of Howell County.—— Edmund V. Cowdry, Ph.D., professor of cytology, Washington University School of Medicine, St. Louis, has been granted leave of absence, in order that he may make a study of parasites in East Africa for the British government.

Society News.—The New Madrid County Health Department, in cooperation with the Crippled Children's Hospital of the University of Missouri and the Missouri Commission for the Blind, held a two-day clinic during the early part of November, 1929, which was attended by several hundred persons.—— The state board of health will broadcast a "Health Hour" program, Monday nights, at 8 p. m., over WOS, consisting of talks on current health subjects and a "question and answer" service.

Three Secretaries in Sixty-Five Years.—The Clay County Medical Society entered its seventy-fifth year with the advent of 1930. Since the Civil War it has had only three secretaries: Drs. John H. Rothwell and Francis H. Matthews, Liberty, and Dr. John J. Gaines, Excelsior Springs. The society was addressed, recently, by Dr. Edward T. Gibson, Kansas City, on "Emotional States and Their Effects on the Human Stomach."——The Marion County Medical Society was addressed at Hannibal, recently, by Dr. Charles C. Conover, Kansas City, on "Heart Disease with Particular Emphasis on the Changes in the Coronary Vessels as Age Progresses."

Instruction for Sewerage Plant Operators.—The bulletin of the state board of health notes that plans are being completed for a short course of instruction for operators in water purification and sewage treatment plants in Missouri, which will be held in the Engineering School Laboratories at Columbia, Mo., during the latter part of February. Lectures will be given on the principles, purpose and interpretation of water and sewage chemistry, bacteriology and biology. The course will not be given unless at least ten eligible persons signify their intention of attending. There will be no enrolment or attendance fees. Further details may be had from the state department of health.

NEW HAMPSHIRE

First Cancer Clinic Established.—According to the *New England Journal of Medicine*, the first cancer clinic in New Hampshire was opened, recently, at the Elliot Hospital, Manchester. This is said to be the first organized movement in the state to combat cancer by the establishment of adequate diagnostic facilities. The state and city health departments have endorsed the clinic. Dr. George C. Wilkins is chief of staff. A diagnostic clinic is held each Friday afternoon. Patients may be referred to the clinic or may apply directly. No charge will be made for patients unable to pay.

NEW YORK

Dust in the Air of Rochester.—A laboratory determination of suspended matter in samples of Rochester air shows that an average of 0.207 tons of dirt per square mile fell daily for the period Nov. 11-14, 1929.

Personal.—Dr. Theobald Smith, director, department of animal pathology, Rockefeller Institute for Medical Research, has agreed to act as consultant in bacteriology to the division of laboratories and research of the New York State Department of Health. Dr. James Ewing, professor of pathology at Cornell University Medical College, has been appointed consulting pathologist to the laboratories.——Dr. Harold Chandler Clark, New Rochelle, has been appointed attending physician at the Seaside Hospital, Staten Island.

Society News.—Fifty-six municipalities have recently installed new or additional purification apparatus for the treatment of public water supplies.——The Nassau County Public Health Committee held a public health demonstration at Mineola, Dec. 4-5, 1929. Among the subjects discussed were "Appraisal of Rural County Health Work," "Control of Venereal Disease," "Health Education in the Schools" and the control of cancer and tuberculosis.——Dr. William H. Park, director, New York City Department of Health Research Laboratories, addressed the Nassau County Medical Society, recently, on the control of diphtheria.——Adam M. Miller, dean, Long Island College Hospital, addressed the Bay Ridge Medical Society, Dec. 10, 1929, on "Does Medical Education Serve Its Purpose?"

New York City

License Restored.—The license of Dr. Samuel Bernfeld was reissued by a vote of the board of regents, Oct. 17, 1929. Dr. Bernfeld's license was reported revoked, June 20, 1921, on the ground that he had been convicted of conspiracy to evade the Selective Service Act.

Physicians' Art Exhibit.—The fourth annual exhibition of the New York Physicians' Art Club will be held at the Academy of Medicine, Fifth Avenue and One Hundred and Third Street, February 15-March 15. Contributions of original work will be received from physicians who are interested in painting,

sculpture, etching or any other of the liberal arts or crafts. Physicians wishing to exhibit their work are requested to communicate at once with Dr. Hermann Fischer, 35 East Eighty-Fourth Street.

Personal.—Dr. Joseph F. McCarthy, professor of urology, New York Post Graduate Medical School and Hospital, was made a corresponding member of the Deutsche Gesellschaft für Urologie at its congress in Munich, Sept. 28, 1929.——The will of the late Dr. R. Melville Cramer bequeathed Dartmouth College $185,000 to be received after the death of the first beneficiaries and to be known as "The R. Melville Cramer Foundation." The purpose of the foundation is to provide fellowships, especially in genetics or other laboratory investigations.—— Dr. David Stuart Dodge Jessup has been promoted to assistant professor of clinical pathology at Columbia University College of Medicine.——Dr. Leverett D. Bristol, health director, American Telephone and Telegraph Company, will address the annual meeting of the American Management Association, Cleveland, January 29, on "Health of Office Workers."

Inventory of Maternity Clinics.—According to a recent inventory of the Welfare Council of New York City, there are ninety-one maternity clinics in the five boroughs of New York, fourteen being maintained by the municipal department of health and seventy-seven by agencies outside the department. The report shows that Manhattan, with 1,800,000 residents and 30,000 births a year, has forty-six of the privately maintained maternity clinics; Brooklyn, with a population of 2,274,000 and about 52,000 births annually, has twenty-one such clinics; the Bronx, with a population close to a million and more than 21,000 births annually, has five maternity clinics; Queens, with a population of nearly a million and 16,000 births annually, has three maternity clinics, and Staten Island has two.

Proposal to Regulate Masseurs.—The health commissioner will ask the board of aldermen to consider revising the ordinance which governs the licensing of massage schools. The department of health, in observing the methods of training of many so-called masseurs since 1918, has found the training totally inadequate, ranging from correspondence courses or night schools with lectures now and then to a few months' course sometimes allied with gymnastics. The board of aldermen will be requested to require that massage operators be trained directly by hospitals and other medical institutions not run for profit, and to appoint an advisory committee comprising two physicians, a health official and a recognized graduate in massage who will examine applicants for licenses. The health commissioner recognizes that massage is essential to successful treatment in many diseases but not a cure-all as some operators appear to believe.

NORTH CAROLINA

Duke University News.—The General Education Board, New York, has authorized grants to Duke University School of Medicine, Durham, totaling $300,000 over a period of five years. It is also announced by the dean that the new medical school will open October 1, and will admit first and third year students. The school will follow the four-quarter plan.

OHIO

Health Officer of Toledo Appointed.—Dr. John L. Lavan was appointed to succeed Dr. Paul F. Orr as health commissioner of Toledo, effective January 1. Dr. Lavan comes from Kansas City, where he was connected with the Bell Memorial Hospital. He was formerly epidemiologist of Kansas City, Mo.

Society News.—Dr. Vernon C. Rowland, associate professor of general and physical diagnosis, Western Reserve University Dental School, was recently elected president of the Academy of Medicine of Cleveland; Mr. H. Van Y. Caldwell was reappointed executive secretary.——Dr. Clyde L. Cummer, Cleveland, among others, addressed the sixty-fourth annual meeting of the Ohio State Dental Society, Columbus, Dec. 3-5, 1929, on "Recognition of Certain Important Diseases as Manifested in the Mouth."

Basic Science Requirement Interferes with Reciprocity.—The State Medical Board of Ohio announces that reciprocal relations with the District of Columbia have been terminated. The reason given for this action is that the Department of Licensure of the District of Columbia advises that applicants from Ohio, holding credentials of graduation from class A institutions, who are licensed by examination, will be required to take the basic science examination before reciprocity is completed.

Department of Experimental Medicine Planned.—The establishment of a department of medical and surgical research is being arranged by Ohio State University. Creation of the department was authorized by the board of trustees as an expansion of the work of the college of medicine. The purpose will be "to coordinate the medical research in medical and surgical fields in the college, to work with the clinical members of the present staff and to inaugurate a program of scientific investigations that should be very fruitful of results." The personnel will include a professor, an assistant, technicians and clerical assistants. According to the dean, the new department "promises to greatly enhance the usefulness of the college of medicine in scientific and clinical medical fields." The college of medicine is the oldest unit of Ohio State University.

Personal.—Dr. Barton W. Johnson has become roentgenologist and pathologist at the Mansfield General Hospital, succeeding Dr. Samuel H. Richman, who resigned to accept a similar position in the laboratories of the Sherman Hospital, Elgin, Ill.——Dr. Homer M. Austin, Columbus, has been appointed chief of the division of hygiene in the state health department, and Dr. Alfred B. Lippert, Columbus, chief of the division of child hygiene.——Dr. Addison L. Stump, Derby, has been appointed health officer of Pickaway County to succeed Dr. George W. Heffner, Circleville, resigned.——Dr. Floyd C. Hendrickson and Dr. Anna R. M. Hendrickson, both of Canton, have accepted positions at Bellevue Hospital, New York, it is reported. The former is on the resident staff in urology and the latter has a position in the department of roentgenology.

Report of Social Hygiene Society.—The Cincinnati Social Hygiene Society, in its annual report, states that the educational measures engaged in included a course at the University of Cincinnati and regular lectures for high school pupils. During Negro Health Week, nine lectures were given to more than 900 in attendance. The society's court worker attended over 300 sessions of the police court. Two hundred home and fifteen jail visits were made. The social hygiene society not only is assisting the juvenile court, St. Edmund's Home for Boys, the Shoemaker Center and the schools in sex delinquency problems, but has helped to secure cooperation between various city departments and officials regarding the quarantine of persons with venereal disease. Medical measures included the continuation of the services of the society's executive secretary as physician on the board of health staff at health center venereal disease clinics, the children's clinic and the juvenile clinic at St. Mary's Home for Girls, and assistance at the adult clinics. A follow-up worker was supplied by the society for the social disease clinic.

SOUTH CAROLINA

Society News.—The Marlboro County Medical Society was addressed at Bennettsville, January 8, by Dr. Edgar A. Hines, Seneca, secretary of the state medical association, on "Some Urgent Economic Problems for Organized Medicine to Solve"; Dr. Pinkney V. Mikell, Columbia, "Pulmonary Abscess Following Tonsillectomy"; Dr. Joseph H. Cannon, Charleston, "Fundamental Considerations in Cardiac Diagnosis"; Dr. Frederick M. Hodges, Richmond, Va., "Ulcers of the Stomach and Duodenum," illustrated, and Dr. Archibald E. Baker, Sr., Charleston, "Postoperative Treatment in Major Surgery." A clinic on neuropsychiatric cases was conducted by Dr. Olin B. Chamberlain, Charleston. Dr. Charles R. May, president of the South Carolina Medical Association, also addressed this meeting.——Dr. W. Cyril O'Driscoll has been elected president of the Charleston Exchange Club.

TENNESSEE

Society News.—Dr. Jesse C. Eldridge, Chattanooga, county health officer, addressed the state convention of public health officers, Nashville, January 13, on "Morbidity Reporting and Proposed Morbidity Registration Areas."—— Postgraduate courses in the following subjects are being given for physicians at the University of Tennessee: January 2-15, diseases of the heart and circulation; January 16-29, diseases of the chest, and January 30-February 12, otolaryngology.

Health at Nashville.—Telegraphic reports to the U. S. Department of Commerce from sixty-four cities with a total population of 30 million, for the week ending January 4, indicate that the highest mortality rate (23.5) was for Nashville, and the mortality rate for the group of cities as a whole, 13.9. The mortality rate for Nashville for the corresponding week of last year was 25.5, and for the group of cities, 19.5. The annual rate for sixty-four cities for the first week of 1930 was 13.9 as against a rate of 19.5 for the corresponding week of 1929. Caution should be used in the interpretation of weekly figures, as they fluctuate widely. The fact that some cities are hospital centers for large areas outside the city limits or that they have a large negro population may tend to increase the death rate.

WEST VIRGINIA

Personal.—Dr. Ben I. Golden, Elkins, has been appointed superintendent of the Davis Memorial Hospital, succeeding his father, the late Dr. W. W. Golden.——Governor Conley has announced the appointment of Dr. J. Edward Richmond of Weirton as physician for the West Virginia Department of Public Safety.——Dr. L. T. Browning has been named director of the Preston County full-time health unit to succeed Dr. Lunsford H. Lewis, who resigned on account of poor health.——At the annual banquet and election of officers of the Mercer County Medical Society, Dec. 19, 1929, Dr. Harry G. Steele, Bluefield, was elected treasurer after having served as secretary of the society for thirteen years.

Society News.—Dr. Louis J. Karnosh, Cleveland, addressed the Ohio County Medical Society, Wheeling, Dec. 6, 1929, on "Constitution in Mental Disease," and Dr. James I. Johnston of the University of Pittsburgh, Nov. 15, 1929, on hypertension. ——At the annual meeting of the Fayette County Medical Society, Oak Hill, Dr. Alfred L. Morris, Jodie, read a paper on "Advantages of Physical Examination in Industrial Practice," and Dr. Gilbert O. Crank, Lawton, on "The Postinfluenzal Heart." The president, Dr. Milton C. Borman, in discussing the last year's activities, said that the attendance at meetings ranged from 22 to 45 per cent; he considered that high. During the year, the membership was increased by about 5 per cent. All scientific papers at the meetings were presented by members except one, by Dr. Charles W. Burr, professor of neuropsychiatry at the University of Pennsylvania School of Medicine, Philadelphia. Dr. William R. Laird presented to the society a silver loving cup in memory of his uncle, who was one of the founders of the society. The cup will be awarded each year to the member presenting the best paper.——The Ohio County Medical Society was addressed, January 10, by Dr. Robert J. Snider, Jr., Wheeling, on "Tetanus," and Dr. John E. Monger, Columbus, Ohio, on "Rabies," illustrated. ——The state health department presented the scientific program before the Kanawha County Medical Society Dec. 17, 1929. The heads of the various departments discussed their respective duties.

GENERAL

News of Epidemics.—The outbreak of smallpox in Davenport, Iowa, up to Dec. 18, 1929, amounted to twenty-two cases. The epidemic of typhoid at Clinton, Iowa, up to December 14, amounted to seventy-five cases and fifteen deaths.——Twenty-five cases of scarlet fever were reported in Ironwood, Mich., Dec. 28, 1929.——Eight cases of smallpox were reported in Bryson, Mich., Dec. 28, 1929.

The Brother and Son Racket.—Dr . Lawrence T. Royster of University, Va., reports that a young man is calling on his physician friends and pretending to be his son. The impostor has obtained money by this means in Denver, San Francisco and St. Louis. The description in each instance was almost identical with that of the individual described in THE JOURNAL, Dec. 14, 1929, p. 1897, except that the latest impostor is said to have a slight strabismus of the left eye.

By Air to Panama Meeting.—Plans have been completed for an airplane trip to the second congress of the Pan-American Medical Association, which will be held in Panama, January 30-February 3. The party, leaving New York, January 24, will cover about 6,000 miles in seventeen days, stopping at Havana, Cuba; Merida, Mexico; Belize, British Honduras; San Lorenzo, Honduras; Guatemala City, Guatemala; San Salvador, Salvador; and Managua and Punta Arenas, Nicaragua. After the congress, visits will be made at Cartagena, Colombia, and Caracas, Venezuela. At each stop a clinic will be conducted on diseases peculiar to the countries visited.

Fruit Cakes Containing Arsenic Traced.—A fruit cake was delivered, Dec. 19, 1929, to the food, drug and insecticide administration of the U. S. Department of Agriculture, Washington, D. C., which had made four people in nearby Virginia ill. Laboratory animals fed on samples of the cake promptly showed symptoms of poisoning. Chemical analysis showed that the cake contained arsenic. The cake was one of nine baked for the holiday trade, and the one eaten by the family where it was baked made six people violently ill. Six cakes were retrieved by the inspector from the purchasers; the ninth had been purchased as a Christmas gift for relatives in Canada. Persistent inquiry finally elicited information as to the destination of this cake and a long distance telephone call to the Canadian recipients warned them of the danger. The United States inspector reported to the Canadian Legation, which secured the cake, and sent it back to the U. S. Food, Drug and Insecticide Administration. On investigating, the inspector learned that the family who baked the cakes had purchased an arsenic insecticide for garden use which it is supposed one of the children mistook for flour and emptied in the flour sack in the pantry.

Formation of Board of Examiners in Obstetrics and Gynecology.—The American Association of Obstetricians, Gynecologists and Abdominal Surgeons, at Asheville, N. C., September, 1927, adopted a resolution providing for the appointment of a committee on standardization of requirements for specialists in obstetrics and gynecology and suggesting the appointment of a similar committee by the American Gynecological Society. The primary function of this committee was to consider ways and means for the organization of an American Board of Obstetrics and Gynecology. The plan provided for the appointment of nine examiners, three by the American Association of Obstetricians, Gynecologists and Abdominal Surgeons; three by the American Gynecological Society, and three by the Section on Obstetrics, Gynecology and Abdominal Surgery of the American Medical Association. The purpose of the board was to examine voluntary candidates and issue certificates to the successful applicants. The Section on Obstetrics, Gynecology and Abdominal Surgery of the American Medical Association, at its recent Portland session, voted to participate in the organization of the board, and the appointment of a committee of three to cooperate with the two existing committees was authorized. At a recent meeting in Memphis, Tenn., the American Association of Obstetricians, Gynecologists and Abdominal Surgeons elected Dr. Walter T. Dannreuther, New York, Dr. Paul Titus, Pittsburgh, and Dr. Grandison D. Royston, St. Louis, to serve as its examiners on the board.

Medical Bills in Congress.—H. R. 7410, proposing to establish a hospital for the care and treatment of persons charged with or convicted of offenses against the United States who are insane, have an incurable or chronic degenerative disease, or are so defective mentally or physically as to require special medical care and treatment, has been favorably reported to the House (Report 102). S. J. Res. 40, authorizing the President to extend invitations to foreign governments to be represented by delegates at the International Congress for the Blind, to be held in New York in 1931, has passed the Senate. H. R. 6323, introduced by Representative Johnson, Oklahoma, proposes to provide that any veteran who has within ten years after his discharge any disability not the result of his own wilful misconduct shall be presumed to have acquired his disability in service. H. R. 7972, introduced by Representative Britten, Illinois, proposes to authorize the admission to naval hospitals of dependents of officers, nurses and enlisted men of the naval service, expenses incident to hospitalization to be met from the naval hospital fund. H. R. 7991, introduced by Representative Taylor, Colorado, proposes to authorize the sum of $40,000 for the construction of a hospital for the Southern Ute Indians, at Ignacio, Colorado. H. R. 8129 introduced by Representative Crail, California, proposes to authorize the admission of the fleet reserve corps and retired officers and enlisted personnel of both sexes of the army, navy and marine corps to the hospitals of any branch of the National Home for Disabled Volunteer Soldiers. H. R. 8130, introduced by Representative Crail, California, proposes to amend the World War Veterans' Act to provide for the hospitalization of fleet reservists and of officers and enlisted men retired from the service. H. R. 8146, introduced by Representative Sproul, Kansas, proposes to authorize an appropriation of $1,250,000 to provide, within the state of Kansas, additional hospital facilities for veterans. H. R. 8149, introduced by Representative Collins, Mississippi, proposes to provide for the establishment of a branch home of the National Home for Disabled Volunteer Soldiers in one of the southern states. H. R. 8288, introduced by Representative Holaday, Illinois, proposes to authorize an appropriation not to exceed $300,000 for the erection of a sanitary fireproof hospital and physicians' quarters at the National Home for Disabled Volunteer Soldiers, Danville, Ill. H. R. 8295, introduced by Representative Lambertson, Kansas, proposes to authorize an appropriation of $430,000 for the construction of one barracks building, one hospital wing, and quarters for physicians at the Western Branch of the National Home for Disabled Volunteer Soldiers.

HAWAII

Shinbori's License Revoked.—At a meeting of the Board of Medical Examiners of the Territory of Hawaii, recently, the license to practice of Ernest Toshio Shinbori was revoked by the board. Shinbori completed the course at Loyola University School of Medicine, Chicago, but during his internship was dismissed from the General Hospital, Uniontown, Pa., for misconduct, and was not granted a diploma.

Government Services

Change of Station in the Navy

Lieut. Henry A. N. Bruckshaw has been assigned to duty involving flying on the U. S. S. *Aroostook;* Lieut. William F. E. Loftin has been transferred to the Asiatic Station, effective about March 1; Lieut. Frederick C. Greaves has been appointed to duty with division 45, destroyer squadrons, battle fleet; Lieut. William R. Manlove has been transferred to the Asiatic Station, effective about February 15; Lieut. Harold C. Bean's resignation has been accepted, effective Dec. 31, 1929; Lieut. Peter C. Supan has been transferred from the fourth regiment of the Marines in China to the U. S. S. *Tulsa,* and Lieut. Thomas J. Carter from the U. S. S. *Tulsa* to the fourth regiment, U. S. Marines.

U. S. Public Health Service

Acting Asst. Surg. William A. Byrnes has been assigned to duty at the marine hospital, Fort Stanton, New Mexico.—— Surg. John T. Burkhalter has been directed to assume charge of Tampa Bay Quarantine Station, Mullet Key, Tampa Bay, Fla.——Surg. Ernest A. Sweet has been relieved from duty at Berlin, Germany, and assigned to duty at Ellis Island, N. Y. ——Asst. Surg. William H. Gordon has been assigned to duty at the marine hospital, Baltimore.——Asst. Surg. Edwin G. Williams has been assigned to duty at the marine hospital, Detroit.

Army Personals

Major Robert H. Duenner is to be relieved from duty at Chicago and assigned to duty in the office of the assistant secretary of war, Washington, D. C., effective July 1.——Col. William H. Tefft is assigned to duty at Fort Sheridan, Illinois, effective about March 1.——The following have been appointed first lieutenants in the medical corps, with rank from Nov. 12, 1929: H. J. Collins, Chicago; Frederick Cantwell Kelly, Antigo, Wis., and William Henry Powell, Jr., Fayetteville, N. C.—— Major Everard Blackshear, on completion of his temporary duty in Washington, D. C., will proceed to Fort Moultrie, South Carolina, for duty.

Changes in Veterans' Bureau Personnel

The U. S. Veterans' Bureau *Medical Bulletin* reports the following recent changes in personnel:

HOSPITALS

Dr. Harry H. Botts, transferred to Gulfport, Miss.
Dr. Samuel D. Clayton, transferred to Jefferson Barracks, Mo.
Dr. Robert P. Crawford, transferred to Memphis, Tenn.
Dr. John L. Donahue, transferred to Tucson, Ariz.
Dr. Lloyd C. Elledge, transferred to Augusta, Ga.
Dr. John L. Gill, transferred to regional office, San Antonio, Texas.
Dr. James A. Howell, transferred to Washington, D. C.
Dr. Isham Kimbell, transferred to Alexandria, La.
Dr. Grover C. Kirk, transferred to Legion, Texas.
Dr. Stanton K. Livingston, resigned at Washington, D. C.
Dr. Vincent J. Meads, detailed to Memphis, Tenn.
Dr. George M. Melvin, transferred to Gulfport, Miss.
Dr. Leonidas J. Morris, promoted to associate physician at Tuskegee, Ala.
Dr. Edmund A. Munoz, resigned at Memphis, Tenn.
Dr. Joseph E. Paganelli, appointed at Bronx, N. Y. (part time).
Dr. Edward L. Patterson, transferred to Fort Harrison, Mont.
Dr. Linnaeus H. Prince, transferred to Edward Hines, Jr., Hospital, Hines, Ill.
Dr. John A. Fringle, transferred to North Little Rock, Ark.
Dr. Floyd B. Ricketts, transferred to regional office, Milwaukee.
Dr. Henry D. Shankle, transferred to Fort Harrison, Montana.
Dr. Alan P. Smith, Jr., promoted to associate physician at Tuskegee, Ala.
Dr. Henry L. Stick, transferred to St. Louis regional office.
Dr. Marcus C. Terry, transferred to Northport, Long Island, N. Y.
Dr. Henry W. Tobias, transferred to central office field roll.
Dr. Charles R. Walton, transferred to Knoxville, Iowa.
Dr. John B. Warden, transferred to Minneapolis.
Dr. Albert E. Williams, transferred to Edward Hines, Jr., Hospital.
Dr. Virgil B. Williams, transferred to Sheridan, Wyo.

REGIONAL OFFICES

Dr. Stephen H. Ackerman, Jr., resigned at Milwaukee.
Dr. J. Calvin Davis, Jr., resigned at Omaha.
Dr. Adolph M. Frank, resigned at St. Louis.
Dr. John W. Hodge, transferred to Chicago.
Dr. George A. McBride, transferred to Jackson, Miss.
Dr. Thomas F. Maher, transferred to Hartford, Conn.
Dr. Walter M. Pamphilon, resigned at Buffalo.
Dr. Sidney J. Shipman, changed to fee basis at San Francisco.
Dr. James P. Wall, changed to fee basis at Jackson, Miss.

Foreign Letters

LONDON

(From Our Regular Correspondent)

Dec. 21, 1929.

Memorial to Manson

Sir Patrick Manson, who died in 1922, established the principle of the insect transmission of disease, and at the international medical congress held in London in 1913 he was acclaimed the father of tropical medicine. In 1907, with the help of Cantlie and others, he founded the Society of Tropical Medicine and Hygiene, of which he was the first president. Among its fellows, now numbering 1,500 of many nationalities, are those most distinguished in tropical medicine. Its work is hindered by lack of suitable premises. The society has decided to found a home and name it after Manson, to whom at present there is no memorial. The fellows and some friends have subscribed $30,000 toward the purpose and are appealing for $100,000, to which they believe that many outside the small professional circle of tropical medicine who know of Manson's labors as a leader of medicine and one of the world's benefactors will desire to subscribe. His great work began in Amoy in 1877 with his demonstration that the filaria of elephantiasis is transmitted by certain mosquitoes. This was no chance discovery but the result of labor done in isolation. So his conviction that malaria was transmitted by mosquitoes was no inspired guess but was founded on his long critical watching of the malarial parasite in human blood and led Ross to the final victory. Donations will be gratefully received by the Royal Society of Tropical Medicine, 11 Chandos Street, Cavendish Square London, W 1.

Race Prejudice

In a letter to the *British Medical Journal,* the Australian surgeon Sir James Barrett hopes for our "troubled world" of some sixty nations a gradual leveling up and equalization of races. He points out that in New Zealand after the Maori wars it appeared that the fine Polynesian race was doomed and in the nineties elimination of these natives seemed certain. But they have become New Zealanders and are increasing in numbers. The half-castes are also increasing and in many cases are thoroughly efficient citizens. There is no colorline and no race feeling; intermarriage is a normal practice. In Honolulu, all opinion is favorable to the mixture of Chinese and Hawaiians; it is even asserted that the offspring inherit the good qualities of both races. Sir James therefore argues that the prejudice against half-castes has no solid foundation and that the result depends not on color but on the quality of the mixing races. However, it must be remembered that in New Zealand a large British population has absorbed a relatively small Polynesian civilization. Yet as civilizations develop and the conditions of life and outlook approximate, it may well be that successful fusions will become more frequent. The recent Pan-Pacific Surgical Conference taught those Europeans who had any doubts on the subject that educated Chinese, Koreans or Japanese can hold their own in medical efficiency with Caucasians.

Standards for Malt Extract

With the object of improving the market for home produce, the ministry of agriculture has promulgated a system of grading, standardizing and marking agricultural products. This has been applied to malt products made entirely from home-grown grain. "All English (Pharmaceutical) Malt Extract" is sold with and without cod liver oil. In addition to a provision regarding the purity and soundness of the barley or malt from which this extract is obtained, standards are laid down in respect to various factors. The specific gravity must not be less than 1.4 and the soluble protein content must be at least 5 per cent.

A Lintner value of 25 is minimum for diastase. When sold in conjunction with cod liver oil, the mixture must contain 15 per cent of oil. It is claimed that the protein present in malt extract made from home-grown grain is better assimilated than that of imported extracts, or extracts made from imported grain.

Gardening for the Blind

A deputation from the Guild of Blind Gardeners urged the educational committee of the London County Council to give instruction in gardening in all schools for blind and myopic children. The guild had been giving instruction in gardening at several of the council's schools and it was felt that the experimental stage had now been passed. The guild recognized that gardening could not be an economic means of livelihood for the totally blind, but a blind person could become a gardener with enjoyment and sometimes with little profit for himself. There were in England some hundreds of blind people who were gardeners, not in the employment of others but because they loved nature and the fresh air. There are in London thirty-four schools where 1,562 children, totally or partially blind, are given instruction, but only a small proportion at present receive instruction in horticulture. The guild also asked that the council should employ in the parks or open spaces as many as possible of the boys who suffer from low or stationary myopia. The committee promised that the points would be carefully considered.

Poisoning by Fumes from Decaying Cargo on Wreck

The wrecked liner *Celtic* has been lying for a year at the entrance to Cork harbor and is so impinged on the rocks that it cannot be floated off. The cargo is therefore being removed. While engaged in this work nineteen men, of whom four died, were overcome in one of the holds by poisonous fumes believed to have been generated by rotting apples. The affected men were pulled up on deck as fast as could be done by means of rope slings or a bucket attached to a crane. One man descended to the hold in a smoke helmet but had hardly reached the bottom when he was so affected that he had to ascend. Among the dead is Mr. Carmichael, the engineer in charge of the operations, who descended into the hold to rescue those overcome. The nature of the poisonous fumes has not been definitely ascertained. Under certain conditions, carbon monoxide may be generated by decaying substances. However, the evidence of the post medical officers at the inquest was that the poison was hydrogen sulphide and that the symptoms were not those of carbon monoxide poisoning. Asked whether contact of the decaying substances with the sea water would have caused the generation of hydrogen sulphide, he said that the question was one for a chemist.

Field Investigation of Cancer

Some physicians in Westmorland, realizing that in spite of much research work in hospital and laboratory no definite knowledge of the causation of cancer had been reached, resolved that the time had come when health officer, country physician and veterinary surgeon should cooperate in the research. Impressed by Dr. Louis Sambon's work in the American tropics, Iceland, Netherlands and Italy, they offered him the opportunity he was seeking for testing his observations abroad on an entire English county. The county of Westmorland offered favorable conditions for epidemiologic and ecologic investigations on account of the diverse nature of its physiography, geographic structure, flora and fauna. A special commission, "The Westmorland Field Commission for Cancer Research," was formed and received every assistance both from the physicians and from the public of the county. The results obtained were considered so striking that they have published them in a letter to the *British Medical Journal* before the final and elaborate report can be brought out. The investigations were thorough and included a complete survey of the entire county and a statistical study of the incidence of cancer for the whole period of registration, which runs almost to a century. Sambon holds that cancer is due to an endocellular parasite adapted to its specific cell host. He looks on the gross tumor as a late manifestation, not unlike the gumma of syphilis. As in tuberculosis, so in cancerosis, the specific germ appears to be universally prevalent and of wide zoological distribution. The parasitic nature of the disease is indicated by its peculiar distribution in time and space. The cluster distribution of cancer cases, pointed out by Sambon in his previous researches, was amply confirmed in Westmorland. During the whole period of registration certain hamlets and villages have remained quite free, while others of equal age, size and population have at one time or another been severely affected. The same holds for terraces and single houses. Numerous family cases and several cases in nonrelated successors were found in single houses. A striking observation was the prevalence of malignant and other neoplasms in the animals of the county, both wild and domestic—horse, cow, sheep, hog, cat, dog, hedgehog, rabbit, vole, rat, mouse, fowl, turkey, goose, owl, canary and toad.

Dress Reform for Men

In a lecture at the Royal Institute of Public Health, Dr. A. C. Jordan, honorary secretary of the Men's Dress Reform Party, said that by nature man was an unclothed animal and that to cover the body promoted immorality by creating mystery. The first object of dress, he contended, was not protection or decency but adornment. It was ridiculous that such a movement as a dress reform party should be needed. Timidity and intolerance were the two main reasons why men had to be helped to achieve what women had won without any fuss. For those hideous and ridiculous "bags" known as "plus fours" there was no excuse. Dr. Jordan next attacked footwear. "No fashionable bootmaker stocks a single pair of boots that satisfies the primary requirements of fitting the normal foot." Sandals or sandal-formed shoes were the best. As to hats, only extremes of cold or sunshine rendered any head covering necessary. Physicians were then blamed for wearing black clothes. When seeing patients, Dr. Jordan wears white and, after two days, his suit has to go to the laundry. "What must be the state of a black suit that is worn not for days but for months and never washed?" Men's evening dress was the acme of beastliness because to its accumulation of dirt was added sweat poured into it, as it was usually worn at hot functions, such as receptions and dances. The slogan for men should be: "Fewer clothes and lighter clothes, cleaner clothes and brighter clothes."

Dr. Dearmer, who presided, was not so revolutionary. He suggested various ways in which men might begin this matter of dress reform—by wearing sandals at home and shorts as their only form of covering for the summer gardening. In respect to dress it was much more difficult to instil common sense into men than into women.

Scaling of Teeth Illegal by Those Who Are Not Dentists

A hairdresser had the notice in his office "Teeth Cleaned and Scaled," for which he charged 50 cents. At the instance of the dental board he was summoned before the court. He wrote to the board that he did no more than clean his customers' teeth with a match stick and hydrogen peroxide, which he regarded as only beauty culture and not dentistry. He had no dental instruments. The dentists' act says that the practice of dentistry consists in "any operation or treatment usually performed by dentists." At the court a leading dentist, Mr. A. T. Pitts, gave evidence that tartar might set up pyorrhea and that scaling was a difficult matter requiring special instruments and skill. The magistrate held that the defendant had held himself out as prepared to practice dentistry but dismissed the summons on payment of $15 costs.

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Spectacles for Fine Work

The medical research council has published an important report of the industrial health research board by H. C. Weston and S. Adams on the use of spectacles in fine work which requires good illumination with near vision and the concomitant strain on accommodation and convergence of the eyes. Relief from this can be furnished by spectacles with suitable lenses and prisms. Workers engaged in "linking" hosiery, mounting lamp filaments and the operation known as "drawing in" in weaving have almost unanimously appreciated the value of the spectacles, and their output has been increased. The examination of steel balls for defects, such as cracks and pits, entails great visual strain and only workers with 6/6 vision are employed and they are allowed frequent rests. Use of the spectacles increased the rate of output without additional fatigue.

The London Clinic and Nursing Home

The foundation stone has been laid at the junction of Harley Street and the Marylebone Road, in the district where the majority of the London consultants live, of the largest and best organized nursing home in England. There will be accommodation for 200 patients each in a separate room and the latest equipment for the treatment of any disease. Speaking at a luncheon to celebrate the event, Lord Moynihan said that in recent years there had been such a demand for hospital accommodation that the resources of the country proved inadequate. The lamentable result was that mankind had been divided into two great categories—the rich, able to afford everything they required in medicine and surgical attention, and the poor, who received the same in the voluntary hospitals. Between these two categories was the large bulk of the people, who were neither rich nor poor but could with difficulty pay their way. For them nothing adequate to their needs had been supplied. The step taken today was the first real effort to meet the deficiency.

PARIS

(From Our Regular Correspondent)

Dec. 11, 1929.

Controversy in Regard to Supervision of Malariotherapeutic Centers

The treatment of paresis by inoculation with malaria is becoming more and more widespread. Dr. Claude, professor of psychiatry at the Faculté de médecine de Paris, has become an earnest advocate of this method. He has obtained from the Academy of Medicine a resolution, to be presented to the minister of public instruction, favoring the creation of several centers of malariotherapy in France, which could be equipped with hematozoa of an excellent strain, to be brought from Austria and carefully cultivated at the Hôpital St. Anne in Paris. In this way, with this special strain, physicians would secure uniform results, which has not been the case thus far. The minister acceded to the request contained in the resolution and decreed, July 20 (no doubt, to avoid the cost of new installations), that the centers be established at the existing syphilographic centers. The specialists in neurology protested against this decision, affirming that paresis and its treatment belonged exclusively to their domain. Professor Lépine, dean of the Faculté de médecine de Lyon, now submitted to the academy the draft of a new resolution, requesting that these centers be organized primarily in the hospital departments of neuropsychiatry and of neurology. A discussion arose over the proposal of Lépine, which received the endorsement of Professors Claude and Guillain. The latter, in particular, expressed the view that, since malariotherapy had not proved its efficacy in any disease other than paresis, it should be applied exclusively in the services of neuropsychiatry. Mr. Ravaut then took the floor in order that the views of the syphilographers on the subject might be heard. Malariotherapy, he said, should be applied early. Recourse may be had to it even before the physical and mental symptoms of paresis have appeared. Many patients in whom one finds merely modifications of the cerebrospinal fluid or symptoms of meningeal syphilis may thus be benefited greatly. It would not be logical to take these patients away from the syphilologists, since the latter keep in touch with their patients, in most cases, from the first manifestations of syphilis. To this, Professor Guillain replied that malariotherapy is a method not free from danger, as it entails a mortality of about 10 per cent, and that consequently it is not indicated to apply it except in paresis. After discussion by Prof. Léon Bernard, the president put the resolution of Professor Lépine to a vote and it was adopted by the academy.

Dangers from Use of Thallium Acetate

Dr. Sabouraud, an authority on diseases of the hair and scalp, devised, about twenty years ago, an ointment of thallium acetate, which gives good results in the treatment of hypertrichosis and in the destruction of parasites. In recent years, accidents have been reported from the use of this preparation. Thallium acetate is, indeed, a toxic substance (even in weak doses). It acts on the nervous system and causes headache, trembling and convulsions. Sabouraud had used it first in his service at the Hôpital St. Louis to bring about a complete removal of the hair in children affected with tinea. The decalvation is temporary and the hair begins to grow again at the end of three months, the interval being utilized for the radical destruction of the spores and the mycelium infesting the scalp. Because of these accidents, Sabouraud has given up the method and prefers decalvation by means of roentgen rays. In a note to the medical journals, he explained that, if his thallium acetate ointment causes nervous disorders, it is because it is poorly prepared and poorly employed. His prescription calls for the introduction into the ointment of a maximal dose of 1 per cent, and of the ointment one should use only a portion equal in size to two kernels of wheat, applied every evening on a limited surface; for example, the upper lip. If applied patiently, this minimal dose will effect the disappearance of the unwelcome down on feminine lips. But if one uses an ointment containing a higher percentage of thallium acetate, or if one applies the ointment, at one time, over more extensive surfaces, accidents may be expected, for which Sabouraud refuses to allow his method to be held responsible.

Tuberculosis in Victims of Asphyxiating Gases

Ex-service men who were intoxicated by gases, during the recent war, and who have survived, present still a great number of disorders that have succeeded pulmonary lesions, and many articles have been published about them. Mr. Lemoine, professor at the Ecole de service de santé militaire du Val-de-Grâce, recently gave, before the Academy of Medicine, the results of his studies as to the increase of tuberculosis among the persons gassed, a liability often invoked by the latter or their associations to show why their pensions should be increased. Though the symptoms observed might be distressing, as a rule it is not a question of true tuberculosis, especially at present, after an interval of from twelve to fourteen years. The gas injuries of 1915-1916, caused chiefly by chlorine vapors, affected exclusively the pulmonary apparatus and produced a fairly high immediate mortality. The victims of the vesicant gases of 1917-1918, the chief one of which was yperite, or dichlorodiethyl sulphide, presented more or less extensive burns of the skin, intense conjunctivitis, laryngitis and digestive disorders; grave pulmonary accidents were the exception, and the mortality was virtually nil. In those gassed in 1915-1916, it was noted that 21.87 per cent became tuberculous, while 25.57 per cent presented signs of chronic bronchitis, dilatation of the bronchi, asthmatic attacks, and pronounced emaciation simulating tuberculosis. In those gassed in 1917-1918, the percentage who became tuberculous was 8.67, while the pseudotuberculous percentage is placed at 16.6.

Clémenceau, the Physician

It is peculiar that, of the numerous biographers of Clémenceau who have sprung into existence since his death, not one makes any reference to the medical side of his powerful personality. Nevertheless, he was a doctor of medicine, as well as the son of a physician, and had completed his medical studies at the Faculté de médecine de Paris. His graduation thesis was not without merit. He opened an office and a dispensary in Montmartre, a workingmen's section of the city, and actually treated many patients. But at that early day he showed great interest in politics. He was elected representative from his ward to the municipal council and later was chosen a member of the chamber of deputies, whereupon he abandoned the medical profession. Clémenceau was afterward appointed minister of the interior, and as such he controlled the public health service. But here also he took the side of politics. When the prefect of Calvados annulled a decision of the council of Cancale, the "oyster city," to construct a sewer that would empty directly into the oyster beds (contrary to all rules of hygiene), he was summoned to Paris by Minister Clémenceau who reproached him for his action, which was unpopular on the eve of the general elections. Clémenceau went every year to Carlsbad, much to the horror of French physicians, who said he was setting a bad example, which was sure to damage the reputation of French health resorts. He responded dryly that he went to Carlsbad to avoid the many interviews and solicitations that would have been inevitable if he went to Vichy. However, he continued to go to Carlsbad when he was no longer minister. During the war, while president of the council, he gave no attention to problems pertaining to the Service de santé, leaving such matters entirely to his secretary, who made appointments to suit himself. With the coming of peace, the Academy of Medicine elected Clémenceau a *membre libre* of the academy. However, he never attended the sessions of the academy and did not even reply to the letter of the president announcing his appointment.

ITALY

(From Our Regular Correspondent)

Nov. 30, 1929.

The Labor Medical Congress

The eighth Congresso di medicina del lavoro, or labor medical congress, was held recently in Naples. The committee on organization was presided over by Professor Castellino. Prof. Luigi Devoto, director of the Clinica del lavoro at the University of Milan, was president of the congress.

BIOLOGIC AND CLINICAL CRITERIA FOR THE SCIENTIFIC ORGANIZATION OF LABOR

The second topic on the program, "Biologic and Clinical Criteria for the Scientific Organization of Labor," was presented by Professor Ajello and Dr. Nebuloni of Milan. They emphasized that what is possibly the most important principle formulated by Taylor, the scientific selection of workmen, has received as yet little attention. At the various congresses that have dealt with the scientific organization of labor, the rôle of medicine has always been regarded as of secondary importance. That was the case also at Paris in 1929, where the human factor was neglected, to which Castellino had called the attention of industrialists and technicians at the Congress of Rome in 1927. It belongs, however, to the physician to recognize and explain to the technicians the differences between a sensation of fatigue and real fatigue; likewise, to discover the changes due to fatigue in the various organs. The duration of work influences the output so much that the hours of labor above eight or nine may be regarded almost as passive, especially if the work is not well organized. One should insist that the workmen, during the principal rest period, partake of a frugal but warm meal under hygienic conditions. Certain psychologic factors are important, among which may be mentioned the monotony of the work. Vocational guidance is determined chiefly on the basis of clinical experience. In order to acquire a psychologic knowledge of the workman, the physician assumes for the time being the rôle of instructor. The medical selection of workmen should be accomplished by means of periodic visits, account being taken of hereditary defects, constitutional weakness and previous infections.

Dr. Viziano of Turin discussed environmental factors in the scientific organization of labor. In considering the influence of light, he remarked that the problem can be expressed as an endeavor to obtain such degree of illumination as will cause the least fatigue and will meet the demands of the so-called hygiene of the retina. Noises, vibrations and offensive odors are environmental factors that impair the health and efficiency of workmen. The calory consumption during work in noisy surroundings is greater than in a quiet environment. Professor Castellino thinks that the best method for selecting workmen is that based on the clinical examination. Professor Felsani emphasized the slight value of mental tests, even in normal subjects and especially in defective subjects. Following the discussion, several conclusions pertaining to vocational guidance, the medical selection of workmen, and the duties of the factory physician, were approved.

LABOR IN THE MINES

Professor Ferrannini, medical clinician of Catania, presented the official paper on "Labor in the Mines." He stated that health conditions among the miners depend chiefly on the environment and explained how certain environmental factors affect the morbidity. The combination of cold and heat with humidity is the most favorable condition for the growth of disease-producing organisms. According to Fenck, the vagosympathetic equilibrium is disturbed, in the direction of vagotonia, by the cold and dampness. The moist heat stimulates those parts of the vagus nerve which control vasodilatation, cardio-inhibition and hypotension. Humidity in the mines is important also because it is an essential condition for the development of ancylostomiasis. Lack of sunlight favors the development of rickets (which is widespread among the miners), spasmophilia and some infections. The electrical conditions of the atmosphere in mines are not normal. In order to work against such disadvantages, the speaker emphasized the value of ventilation, drainage, electrical illumination, shorter working hours and prophylactic measures, which included the selection of workmen who are not of the lymphatic, the endocrinopathic and other unsuitable types. Heliotherapeutic colonies would be useful to counteract the habitual lack of sunlight to which the miners are subjected.

Many persons at the congress participated in the discussion of the papers. Professor Lorigo of Rome spoke of the nature of the material handled by workmen as a frequent cause of intoxication; Professor Pellegrino of Padua called attention to the great frequency of arteriosclerosis among miners, and emphasized the great influence of high temperature in bringing about premature old age. Professor Devoto stressed the importance of the quality of food of miners—the quality being more important than the quantity.

WORK IN SEAPORTS

The third topic on the program, "Work in Seaports," was presented by Professor Castellino of Naples. He divided the work of seaports into two main groups: (1) workmen skilled in loading and unloading boats, and (2) workmen skilled in the work of equipping, furnishing and careening boats. Among the first, the most interesting, from the sanitary point of view, are the coal heavers, with their characteristic diseases. Among the second, a characteristic disorder is the caisson disease, which is encountered among workmen employed at great depths. The speaker noted also the special type of accidents occurring in seaports and the opportunities offered for making a classification of work according to the degree of danger.

It would be advisable to establish in the ports economical kitchens with a view to improving the present diet of the workmen.

After the presentation of numerous further communications on various subjects, the congress adjourned. Milan was selected as the meeting place of the next congress.

Navy Medical School Organized

At the Scuola di sanità militare marittima, a complete course in the sanitary work of the navy has been organized. The chief subjects of instruction will be naval hygiene, tropical diseases and military legal medicine.

Courses in Phthisiology for Foreign Physicians

At the Garbagnate Sanatorium in Milan, courses in phthisiology for foreign physicians have been organized. They will be admitted to the course gratuitously and will find an opportunity of studying the most modern diagnostic and therapeutic methods in use in combating pulmonary tuberculosis.

Portable Antituberculosis Dispensary

The first portable antituberculosis dispensary in Italy has been established at Rome. It is mounted on an automobile and consists of a radiologic laboratory and a room with microscopes, applicances for disinfection, and a cinematographic apparatus. Every antituberculosis society in the provinces will be provided with a similar dispensary.

Meeting of Anatomists

The Società italiana di anatomia held recently its first meeting in Bologna. Professor Valenti, director of the Institute of Anatomy in Bologna, presided.

Professor Levi of Turin presented the official paper on "The Contribution Brought by the Cultivation of Tissues to the Knowledge of the Structure of Nerve Tissue." Professor Luna of Palermo offered a communication on "The Structure of the Animal Organism." Some hundred other communications were presented, among which was a paper by Professor Volterra on the reticulo-endothelial system, and one by Viola on quantitative anatomy, which awakened much discussion.

The next meeting will be held in Florence, under the chairmanship of Prof. Giulio Chiarugi, anatomist, of the University of Florence.

AUSTRALIA

(From Our Regular Correspondent)

Nov. 21, 1929.

Medical Diagnosis Bureaus in Victoria

In an endeavor to overcome the rapidly increasing problem of handling the huge number of outpatients at the metropolitan hospitals, as well as to effect a more complete coordination of health and medical activities in general, the charities board of Victoria has drawn up a complete and well thought out scheme of medical diagnosis bureaus for service in the outer suburbs of Melbourne. As an indication of the magnitude of the problem of outpatient treatment, for the financial year ended June 30, 1928, there were 841,171 attendances at the outpatient departments of the metropolitan hospitals. With a population of one million, these figures are staggering. It is estimated that about one sixth of this figure represents the actual number of individual cases that have received treatment. In other words, one seventh of the population of Melbourne was treated in the outpatient departments of the metropolitan hospitals during twelve months. A slight fallacy may exist in this figure as a result of the attendance of some patients who reside outside the metropolitan area. It can readily be appreciated that this growing hospitalization of the community is making serious and unwarranted inroads on private medical practice, and any organized scheme of medical service must provide a filter whereby the nonindigent are referred back to private practitioners.

The main function of the medical diagnosis bureaus is to provide a clearing house and short-circuiting depot whereby the abuse and overuse of the existing outpatient departments will be mitigated, minor illnesses treated and investigational facilities provided for local medical practitioners.

The proposed component parts of the model bureaus would be: 1. A free dispensary wherein indigent patients will receive attention and minor conditions receive treatment, and persons needing more extensive treatment sent with full diagnosis to a general hospital. This unit would be supervised by a resident medical officer working under direction of an honorary medical staff. No fees would be paid by patients, who would, however be expected to establish their inability to obtain private treatment. 2. A consulting department, where the full range of scientific investigation would be undertaken on written requisition of a private practitioner, to whom the result of the investigation would be conveyed and on whom the treatment of the patient would rest. No patient would be seen under any circumstances in this department without a letter from a physician. If a patient presented himself at the free part or at this part who was not in indigent circumstances and who had no usual medical adviser, he would be given a list of the practicing physicians in his district. Persons coming here would be charged the full rate or such reduced scale as may be prescribed. The department would be available to physicians and the public for general as well as special examination. 3. A public health and tuberculosis dispensary for any purpose which the respective departments require, especially on the preventive side of their activities, and with the right of using the permanent and scientific plants. 4. A baby health center, with accommodation such as is now provided in independent units. 5. A visiting nurses' center, being purely a depot for nurses working in surrounding districts.

The proposed personnel would consist of: a general (lay) superintendent, with necessary office staff, to supervise establishment and general administration; a medical superintendent, to control all matters of detail and coordination among the several interests; a resident medical officer (or officers) to make preliminary examination of free cases, to assist in other departments; an experienced radiologist, bacteriologist, pathologist and biochemist, either as one person or more as the demands warrant, and an attending nursing staff for use when the service of a nurse is indicated.

As regards the capital required, an apportionment of cost is to be made between the organizations concerned on the basis of floor area required, the public portion to be borne in the same way as at present; viz., by voluntary contributions supplemented by government subsidy.

The amount of charitable work carried out at the centers would be limited entirely to preliminary examinations of indigent persons and the necessary treatment for minor ailments. This section can be expected to appeal to the charitably disposed, and income from voluntary contributions, supplemented by a grant from the Hospitals and Charities Fund, will meet all expenditure. The site would be chosen with a view to adding, when the occasion arose, intermediate and private indoor accommodation. Control would be vested in a council elected from the controlling authorities of the several interests, including contributors to the free portion.

The benefits such establishments would confer on the community and on the affected interests are numerous, the principal points being that time and money would be saved to the patient in having examination facilities close at hand as an alternative to making long journeys to a central hospital. Classification of patients, both from the physical and from the financial aspect, would be ensured and expedited. In view of the community hospital regulations, the bed accommodation should be viewed as a provision under these regulations for the reception of private and intermediate patients only, for it is not necessary,

nor is it desirable, to multiply the institutions giving relief to the indigent. These beds would be available for use by the whole of the medical practitioners in the district served, just as if they were private.

JAPAN

(From Our Regular Correspondent)

Dec. 4, 1929.

Safety Week

Under the auspices of the Industry Association, the Japan Mining Association and the Engineering Works Association, a safety week was held beginning November 21 to prevent accidental deaths and injuries in factories and mines throughout the country. The Tokyo authorities offered prizes for the best slogans for safety week. Two were accepted: "Kegasuru-toki no yosogokoro" (Absentmindedness leads to injury) and "Shikkari shigoto, ukkari jiko" (Unemployment causes accidents).

Antirabic Week

Antirabic week was held throughout the country, beginning November 11. The following routine was adhered to during the week: public education by means of lectures; examination of dogs; enforcement of registration of pet dogs; killing of all stray and nonregistered dogs; enforcement of the antirabic inoculation of dogs.

The Antileprosy Association

Under the auspices of the department of the interior, the Antileprosy Association has been organized by Mr. Akagi, chief of the sanitary bureau, Dr. R. Takano, chief of the preventive medicine bureau, and others. The first meeting was held in Tokyo, November 21 to 23. A meeting was held by the directors of the leprosariums at the same time.

The International Leprosy Conference

Under the auspices of the League of Nations, the leprosy Conference will be held in Tokyo in April, 1930. The budget for it, including the traveling expenses of the delegates from other countries, has already been voted by the Japanese government.

Hospital News

The reconstruction of the hospital attached to the Jikeikai Medical College at Shiba Park, Tokyo, which was destroyed by the earthquake of 1923, will be completed in March, 1930.

Dr. Tysler, chief of St. Luke's International Hospital, has raised $1,404,000 of the reconstruction fund. It includes contributions from John D. Rockefeller, Jr., and William C. Mather. Dr. Tysler has gone to America to join Dr. Eliot, who is soliciting the remainder of the fund. Bishop Sneider will go over later to join in the enterprise.

The Doai Hospital, Tokyo, was opened in June, 1929. It was erected partly with money contributed by American sympathizers following the earthquake in 1923. It has had an average of 150 inpatients and 500 outpatients daily, since its opening.

The Salvation Army Hospital, which was also destroyed by the earthquake, has been completely reconstructed at Asakusa, Tokyo. The opening service was held, November 14. Gen. Evangeline C. Booth, commander of the Salvation Army in the United States, attended the ceremony.

Leprosariums

The Oshima Leprosarium has been ordered to enlarge its capacity to admit 130 more patients. The Nagashima National Leprosarium is erecting a building on Nagashima Island. The corner stone was laid, July 17. It will be completed within a year. The Zensei Leprosarium celebrated its twentieth anniversary, September 28. A social meeting was held by the inpatients (numbering 939) in the evening.

Sanatoriums

The Tokyo City Sanatorium is going to increase its capacity by an addition of 300 beds.

The Tokyo Prefecture has laid the cornerstone for a new sanatorium at a village in Kitatoshima County near Tokyo.

The Tokyo Electric Company has planned to establish a new sanatorium for the employees of the company at Zushi near Kamakura. Those who contribute to the health insurance are to be admitted without charge.

The city of Maebashi, Gumma Prefecture, will establish a sanatorium by order of the home ministry.

Personal Items

Dr. T. Shido, professor in the Kyushu Imperial University, and Dr. K. Iwakawa, professor in the Niigata Imperial Medical College, left in October to familiarize themselves with medical education in America and Europe.

Dr. Iimura, sanitary expert, has been ordered by the home ministry to investigate the present epidemic of encephalitis. He will make a thorough investigation of the epidemiology.

Dr. A. Fujinami, professor of pathology in the Kyoto Imperial University, became a member of the Imperial Japanese Academy of Science at the general meeting of the academy, October 12.

Dr. M. Miura, a member of the Physical and Chemical Research Institute, died of peritonitis in the Japan Red Cross Hospital, Tokyo, November 20. In 1913 he married a well known vocalist and opera singer of "Madam Butterfly." In 1914 he went to Germany to study, accompanied by his bride, who studied music. They stayed there until the outbreak of the World War. Mrs. Miura has recently been singing on the American stage.

BERLIN

(From Our Regular Correspondent)

Dec. 14, 1929.

Institute for Radiologic Research

The university institute for radiologic research, located in Berlin, facing the Luisenplatz, and in the immediate vicinity of the Charité Hospital, was dedicated recently. Prof. W. Friedrich is the director of the new institute. In keeping with his membership in the faculty of medicine, the institute will pursue studies on the medicobiologic and physical bases of research on radiations of all wavelengths. The laboratories occupy three floors. In the basement are the heavy machinery, the central heating plant, the constant temperature rooms and cages for experimental animals. On the main floor are the various collections, an auditorium, the classroom and the mechanical workshop. On the second floor are the department of physics, the administrative offices and the private laboratory of the director. On the third floor are the biology and the chemistry departments. The fourth floor is reserved for dwellings. A meteorological station uses some of the attic rooms and has some of its equipment on the roof.

Immunization Against Diphtheria

Concerning the question as to what extent immunization against diphtheria shall be carried out in Germany, Professor Möllers, member of the federal public health service, has published a detailed pronouncement, in which he arrives at the following conclusions:

1. Passive immunization against diphtheria with antitoxic diphtheritic serum can be recommended unconditionally in all cases in which there is immediate danger of contagion; for instance, members of the family of diphtheria patients.

2. Active immunization against diphtheria, provided proper precautions are taken, may be considered harmless. The accidents that have been observed may be avoided if the vaccine material is properly taken care of. They are due chiefly to errors in preparation of the serum or to decomposition or subsequent contamination of the vaccine.

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3. Untoward local or general reactions do not often occur in Germany.

4. Immunization against diphtheria does not give, ordinarily, absolute protection but only relative protection.

5. A general compulsory immunization against diphtheria is not being considered in Germany, for the present. It will be confined to certain districts and to certain periods when diphtheria appears in epidemic form or in an especially virulent type. However, it gives food for thought that the number of cases (and deaths) of diphtheria reported from the states of Germany has risen from 33,542 (deaths, 1,695) in 1927 to 41,160 (deaths, 2,380) in 1928, and that the case mortality has increased from 5.05 per cent to 5.78 per cent.

Even when children have received protective inoculation against diphtheria, the general prophylactic and protective measures against the transmission of infectious diseases must be observed.

A definitive judgment concerning the value of the protective inoculations being carried out on a large scale at present in many sections of Prussia, and especially in Berlin, cannot be reached for a number of years. On the basis of previous experiences it must be assumed that a certain percentage of the persons inoculated will nevertheless contract the disease and that a certain number will succumb to the attack. The actual value of the protective inoculation cannot, therefore, be established until, in a large series of inoculations, one is able to compare the frequency of morbidity and mortality from diphtheria in the inoculated and in the controls. However, our present knowledge of the good results of active immunization against diphtheria justifies the belief that many a child who would otherwise die from diphtheria may be saved by protective inoculation.

Hereditary Transmission of Mental Disorders

Since heredity is one of the most important sources of mental disorders, the prevention of propagation by the mentally diseased might be of great benefit; but to guard against inherited psychoses one must first discover how hereditary transmission is effected. In the *Deutsche medizinische Wochenschrift*, Professor Rüdin gives some results of his research on this subject, which is a comparatively new field of investigation. Breeders of animals are familiar with the hereditary sequence of many characteristics and can therefore estimate in advance the outcome of certain crossings. There are two possibilities with respect to the nature of the posterity: (1) the breeder can predict with 100 per cent accuracy that all the offspring will be of a definite type, or (2) he can predict that a certain definite percentage of the offspring will be of one type, and that a certain percentage will be of a certain different type. In the latter event, however, the prediction is not so precise. The breeder can merely predict, for instance, that one fourth of the offspring will be of a certain type and three fourths of another different type. Since the breeding of human beings is not so carefully controlled as that of animals, no predictions with 100 per cent accuracy can be made. In isolated cases, however, a prediction with a certain degree of probability is possible. For instance, in hereditary chorea, or St. Vitus' dance, it may be predicted that 50 per cent of the offspring of such patients will present the same disorder, while 50 per cent will be free from it. There are other mental conditions in which certain prognoses are possible from an examination of the posterity of diseased progenitors and likewise of their externally healthy relatives. There is evidence to support the belief that many widespread mental disorders, such as dementia praecox, manic-depressive insanity, epilepsy, hysteria, and congenital feeble-mindedness, are of markedly hereditary origin. If one examines carefully all branches of a tainted family, including the progenitors, the children and other relatives, and follows the course of the diseases and disturbances down through the ever increasing number of generations, important evidence in support of hereditary transmission of mental disease may be secured. Professor Rüdin said that from 30 to 33 per cent of children of parents with manic-depressive insanity have the same disease, while parents with dementia praecox hand on their disease to only from 9 to 10 per cent of their children. In epilepsy the proportion of children affected is about the same as in dementia praecox. However, in addition to the children with actual mental disease there are at least an equal number with abnormal mentalities or with eccentricities. The foregoing statistics give the results when only one or the other parent is affected with the disease in question. The number of children with psychopathic tendencies when only one parent presents dementia praecox is from 30 to 42 per cent. The percentage is higher, the more abnormal the parent is who is not mentally ill. If both parents are mentally ill, one may find among the surviving children of dementia praecox patients as high as 53 per cent with the same disease and 29 per cent with similar symptoms; in one particular instance, only 18 per cent of the children showed no mental disturbances. In certain cases in which both parents were affected with manic-depressive insanity, 62.5 per cent of the children had the same disease and 37.5 per cent were abnormal. These facts furnish strong evidence for the belief that the offspring of mentally ill parents are exposed to grave danger and that serious attention must be paid to the institution of measures that will prevent the propagation of such offspring. But also among the offspring of brothers and sisters, sons and daughters, grandchildren and other relatives who are not mentally ill, mental diseases or at least abnormalities occur—to a lesser degree, to be sure, but more frequently than among the general population. In view of Rüdin's observations, they, too, should be advised to refrain from producing offspring, especially if they give evidence of certain anomalies. When these researches have been developed further, it will be possible to set up a scale of probability that will show how great the danger of hereditary transmission of mental disease is in a given case and just how great the need is of preventing the propagation of offspring.

RIO DE JANEIRO

(From Our Regular Correspondent)

Dec. 15, 1929.

The Fifth Brazilian Congress of Hygiene

The fifth Brazilian Congress of Hygiene was held, Oct. 17-22, 1929, at Recife, Pernambuco, under the chairmanship of Prof. Clementino Fraga, general director of the national department of public health. Besides the principal inaugural and closing meetings, other assemblies were held for a series of lectures, which were delivered by prominent Brazilian scientists. In these lectures, the following topics were discussed: "Hygienic Organization of Teaching," by Prof. Abreu Fialho; "Anti-Ophidic Campaigns," Dr. Afranio Amaral; "Transmission of Yellow Fever by Mosquitoes," Dr. Aragão; "Brazilian Problem of Schistosomiasis," Dr. Heraldo Maciel; "Standard for Health Organizations," Dr. Raul Magalhães; "Problems on Public Health," Dr. Waldomiro de Oliveira; "Oroya Fever," Prof. Rocha Lima. During five of the plenary meetings, six official themes were discussed, and 120 papers were read before the congress. The topics debated were: "Waters of Drainage and Waste Waters from Industries"; "Standard for Health Organizations, Which May Be Applicable to Brazil"; "Natimortality and Infant Mortality, Its Causes and Correctives"; "Laboratory Technics Used in Public Health"; "Malaria," and "Dysentery in Brazil." In a total of twenty-four papers, the following topics were discussed: serodiagnosis of syphilis, collection of material and its clinical and hygienic importance, yellow fever, plague and other infections of rats, tuberculosis, fevers of the typhus group, syphilis, leprosy, epidemic meningitis, diphtheria, cysticercosis, preparation of antismallpox vaccine, experimental studies on rabies at Pasteur Institute of Pernambuco, Eijkman's

method for bacteriologic examination of the water, considerations on the differentiation of natural and pasteurized milk, and methods to determine the radioactivity of solid, liquid and gaseous bodies. The congressmen were greatly interested in the discussions held after the reading of theses and papers during the plenary meetings, particularly on such themes as those related to health organizations, infant mortality and dysentery, on which numerous speakers brought under discussion valuable data.

USE OF B C G BACILLUS IN ANTITUBERCULOSIS VACCINATION

Dr. Arlindo de Assis, assistant physician of the Instituto Vital Brazil, arrived at the following conclusions: B C G bacillus, injected by subcutaneous, peritoneal and testicular routes in guinea-pigs, failed to cause generalized tuberculosis of a progressive type, which could not be checked. The germ has a protective action against the natural infection of bovine tuberculosis, acquired by cohabitation, having in some cases complete efficiency, without demanding especial attention to the alimentation and separation of the calves. In infants, the oral administration of B C G vaccine, shortly after birth, showed that it is harmless and seemed to exert a favorable influence on the infants, whose mortality became relatively low.

RESEARCH ON YELLOW FEVER

Dr. Luiz Salles Gomes, assistant physician of the Instituto Bacteriologico of São Paulo, summarized his observations by stating that in some cases of yellow fever that were isolated by the health authorities of São Paulo the following researches were made: 1. Ultramicroscopic observations, inoculation and culture of the patients' blood, taken at the onset of the disease, did not yield Noguchi's *Leptospira icteroides*. No guinea-pig died after inoculation with the patients' blood, and the blood of those guinea-pigs which showed hyperthermia when it was cultivated and reinoculated gave negative results. 2. The observation reported last April by Dr. J. Costa Cruz of the Instituto Oswaldo Cruz, relating to the diminution or absence of alexin in the blood serum of yellow fever patients, was confirmed. In patients, either with the virulent or the benign form of yellow fever infection, diminution of the alexin in the blood serum was proved. One of the patients, at the second day of the onset of the disease, did not show diminution of the alexin; on the seventh day he presented complete absence of alexin, and he died the next day, the eighth day from the onset of the disease. The blood serum of a convalescent and that of a rhesus monkey previously injected with yellow fever showed diminution of the power of alexin. 3. As a rule, the studies on the estimation of the dextrose content in the blood serum of some patients showed marked hypoglycemia from the fourth to the seventh day of the onset of the disease.

SOME CAUSES OF FAILURE IN TREATMENT OF GASTRIC AND DUODENAL ULCERS

Prof. Guerra Blessmann of Porto Alegre came to the following conclusions on the causes of failure in the treatment of some gastric and duodenal ulcers: 1. Whenever medical treatment is ineffective in the management of a gastric or duodenal ulcer, a careful examination should again be made, to avoid the possibility of a mistaken diagnosis and the performance of an unnecessary operation. 2. Among the failures in operations for gastric ulcers, those which depend on the anesthesia used should be considered. 3. The speaker has obtained the best results by using splanchnic anesthesia. Some years ago he used Braun and Finister's technic with good results, but at present he uses the technic of Kappis with satisfaction. 4. In choosing between gastropylorectomy and gastro-enterostomy, the former should be preferred, since it gives the best late results. 5. Polya's or Finsterer's technic should be preferred in performing gastropylorectomies. 6. Especial attention should be given to the closing of the duodenal stump. In two of the speaker's cases, a late rupture of the duodenal stump occurred. In one of these cases, he found at necropsy that the late rupture had been caused by an obstruction, which had been caused, in turn, by old adhesions at the level of the third portion. In the other case, necropsy was not permitted. 7. Whenever the speaker performed a high resection, he preferred to make an anterior anastomosis with the long loop, because in that way the traction, and possible formation of kinks, is avoided. 8. When the short loops were made, the speaker followed Bancroft and Cole's method. 9. For the seroserous suture, the speaker used linen thread, and for the other sutures he used simple catgut. 10. Even when an exact technic is followed and all precautions are observed, the rapid emptying of hyperacid content of the stomach may cause bad results in the operation.

VACUOLATION OF NERVE CELLS IN SENSORY GANGLIONS

Dr. Moacyr Amorim has observed in a case of anesthetic leprosy and in two still-born infants some cells which presented an unusual stage of vacuolation, which has not been previously described in similar cellular forms. He observed the cells in photomicrographs of the sensory ganglions, principally the gasserian ganglion of the trigeminus and the ganglion of the vagus nerve. The author has observed also a gigantic vacuolation of the cells in the ganglions of some animals, such as the semilunar ganglions of the horse and of the deer, and the semilunar and spinal ganglions of the armadillo. This vacuolation of the cells was similar to some of the forms pointed out by the older research workers, found in tissues by staining methods, while the speaker used neurofibrillar methods of metallic impregnation.

BIOCHEMICAL CHANGES IN THE TRANSFORMATION OF A DYSENTERIC BACILLUS Y INTO FLEXNER'S BACILLUS

Dr. Lucas de Assumpção stated that the changes observed in the bacillus of dysentery are common but that he could not find in the literature an account of the intermediary modifications in that transformation. In the last work that the speaker did on the late fermentation of the bacillus of dysentery he was able to observe the modifications of the fermentation during thirty days that the germs stayed in the incubator, and he repeated the same experiment for several months. Then the speaker became aware that some of the bacilli pass by an adaptation characterized by the inconstancy of its power of fermentation during some months, and later it becomes stable. Other bacilli still continue to present late fermentations, and still others keep the same fermentation which they exhibited after twenty-four hours in their first transfer, in the series of sugars, and they never present later changes or late fermentation. The author observed that bacillus Y during a period of ninety days in the incubator changed into Flexner's bacillus 653 times. Besides the fermentations that are characteristic of the germ, it caused in its second transfer, thirty days after the first transfer, fermentation of maltose in the sixteenth day, and of saccharose in the tenth day. In the third transfer, thirty days after the second, the late fermentation of maltose and of saccharose was more rapid, in both cases appearing from the fourth to the fifth day. In the fourth transfer the germ caused the fermentation of maltose only twenty-four hours after, and did not cause the fermentation of the saccharose in the thirty days in which it stayed in the incubator. Since then, the fermentation caused by the germ has been always the same for two years, without presenting late fermentations, and the bacillus of dysentery has been transformed into Flexner's bacillus. The author discussed the loss of the germ's power to ferment saccharose, exactly at the time when the best results of fermentations were being produced at every transfer.

Marriages

STUART A. CAMERON, Lieut., M. C., U. S. Army, Washington, D. C., to Mrs. Gladys Summers Wachtel of Oak Park, Nov. 16, 1929.

FERDINAND RICHARDS, JR., to Miss Marguerite Ragsdale, both of Jacksonville, Fla., at Gainesville, Nov. 6, 1929.

J. HAROLD HOPKINS, Walnut, Ill., to Miss Myrtle Marks of Dow City, Iowa, in Omaha, Dec. 27, 1929.

GEORGE W. RICHARDSON, Jacksonville, Fla., to Miss Etta Morris of Orangeburg, S. C., Dec. 4, 1929.

BENJAMIN L. LONG, Glen Alpine, N. C., to Miss Lois Coulter of Newton, in Lincolnton, Dec. 4, 1929.

CLARENCE LEON WILSON to Miss Ernestine Grace Fleming, both of Chicago, Dec. 31, 1929.

Deaths

Carl August Hamann ✠ Cleveland; University of Pennsylvania School of Medicine, Philadelphia, 1890; professor of applied anatomy and clinical surgery since 1911 and for sixteen years dean at Western Reserve University School of Medicine, where he was foremost as an executive in the development of the new medical center; assistant demonstrator of anatomy at his alma mater, 1891-1893; member of the American Surgical Association, the American College of Surgeons, the American Association of Anatomists and the American Association of Pathologists and Bacteriologists; founder of the Hamann Museum of Anatomy and Anthropology, which contains the greatest number of human skulls and skeletons; chief of the surgical staff of the City Hospital and visiting surgeon to St. Vincent's Charity Hospital, where he died, January 12, of heart disease, aged 61.

James Whittier May ✠ Kansas City, Kan.; College of Physicians and Surgeons, Kansas City, 1900; member of the House of Delegates of the American Medical Association, 1909, 1918 and 1921; member of the American Academy of Ophthalmology and Oto-Laryngology and the American College of Surgeons; past president of the Kansas Medical Society; member of the state board of registration and examination; served during the World War; on the staffs of St. Margaret's Hospital and the Bethany Methodist Hospital; aged 50; died, Dec. 19, 1929, at the Bell Memorial Hospital, of pneumonia and pernicious anemia.

John Eastman Wilson, New York; New York Homeopathic Medical College and Hospital, 1883; at one time professor of diseases of the nervous system at his alma mater; on the staffs of the Fifth Avenue Hospital, Broad Street Hospital, Oneida, Middletown (N. Y.) State Hospital, Homeopathic and Maternity Hospital, Yonkers, and the Ann May Memorial Hospital, Spring Lake Beach, N. J.; aged 72; died, Dec. 19, 1929, of heart disease.

John Ernest Coulter, Winnipeg, Man., Canada; Manitoba Medical College, 1895; member of the American College of Surgeons; registrar of the Council of the College of Physicians and Surgeons of Manitoba; formerly demonstrator of anatomy and clinical anatomy and lecturer in obstetrics at his alma mater; for many years on the staff of the Grace Hospital; aged 60; died, Nov. 2, 1929, at the Winnipeg General Hospital.

Philip Seddon Roy ✠ Washington, D. C.; University of Virginia Department of Medicine, Charlottesville, 1880; past president of the Medical Society of the District of Columbia; member of the House of Delegates of the American Medical Association, 1918, 1927 and 1928; member of the American College of Physicians; formerly director of the Emergency Hospital; aged 68; died, Dec. 18, 1929, of angina pectoris.

Albert Lawrence Miner ✠ Bellows Falls, Vt.; Baltimore Medical College, 1894; past president of the Vermont State Medical Society; formerly physician in the U. S. Indian Service at Oklahoma and Minnesota; aged 60; for three years chairman of the school board; on the staff of the Rockingham Hospital, where he died, Nov. 9, 1929, of pancreatitis and acute dilatation of the heart.

James Allen Patterson ✠ Colorado Springs, Colo.; Jefferson Medical College, Philadelphia, 1882; member of the American Academy of Ophthalmology and Oto-Laryngology and the American Laryngological, Rhinological and Otological Society; formerly on the staff of St. Francis Hospital; aged 68; died, Nov. 27, 1929, of adenoma of the prostate and pyelonephritis.

John Garfield Pettit, Hopemont, W. Va.; Illinois Medical College, Chicago, 1902; member of the West Virginia State Medical Association; formerly president of the West Virginia Tuberculosis Association; superintendent of the State Tuberculosis Sanatorium; aged 49; died, Dec. 20, 1929, in a hospital at Clarksburg, following an operation for gastric ulcer.

Charles Virginius Unsworth ✠ New Orleans; Medical Department of Tulane University of Louisiana, New Orleans, 1904; past president of the Louisiana State Medical Society; attending physician to the Louisiana Retreat; formerly on the staff of the Hotel Dieu Hospital; aged 58; died, Dec. 9, 1929, of pneumonia.

Thomas Evans Chandler ✠ Boston; Boston University School of Medicine, 1900; member of the American College of Surgeons; associate professor of surgery at his alma mater; served during the World War; on the staff of the Massachusetts Homeopathic Hospital; aged 58; died, Dec. 2, 1929, of heart disease.

Chalmers Hinton, Lawrenceville, Ga.; University of Georgia Medical Department, Augusta, 1909; member of the Medical Association of Georgia; served during the World War; aged 40; died, Dec. 19, 1929, at the Wesley Memorial Hospital, Atlanta, of injuries received in an automobile accident.

Walter Russell Potter ✠ Bowie, Texas; Vanderbilt University School of Medicine, Nashville, 1887; past president of the Montague County Medical Society; formerly health officer; aged 62; died, Dec. 1, 1929, in a hospital at Fort Worth, following an operation for carcinoma of the sigmoid.

John P. von Berg ✠ Albert Lea, Minn.; Hahnemann Medical College and Hospital, Chicago, 1884; past president of the Freeborn County Medical Society; for many years member of the school board; formerly on the staff of the City and County Hospital; aged 71; died, Dec. 4, 1929.

Philip Henry Moore ✠ Philadelphia; Jefferson Medical College of Philadelphia, 1902; formerly instructor of ophthalmology at his alma mater; served during the World War; on the staff of the Methodist Episcopal Hospital; aged 62; died, Dec. 18, 1929, of arteriosclerosis.

X. L. Anthony, Spokane, Wash.; McGill University Faculty of Medicine, Montreal, Que., Canada, 1895; member of the Washington State Medical Association and the Pacific Coast Oto-Ophthalmological Society; aged 58; died, Nov. 29, 1929, of carcinoma of the pancreas.

John Maurice Quirk ✠ Watkins Glen, N. Y.; Syracuse University College of Medicine, 1894; on the staff of the Shepard Hospital, Montour Falls; manager of the Willard (N. Y.) State Hospital for the Insane; aged 62; died, Dec. 20, 1929, of coronary thrombosis.

Ralph Willard Sease, Kingstree, S. C.; Medical College of the State of South Carolina, Charleston, 1921; member of the South Carolina Medical Association; on the staff of the Kelley Sanatorium; aged 33; died, Dec. 2, 1929, of lobar pneumonia, following influenza.

John Orchard Todd, Winnipeg, Man., Canada; Manitoba Medical College, 1890; emeritus professor of surgery at his alma mater; served during the World War; aged 65; formerly on the staff of the Winnipeg General Hospital, where he died, Oct. 29, 1929.

William Brown Cox ✠ Chester, S. C.; Southern Medical College, Atlanta, 1890; past president of the Chester County Medical Society; on the staff of the Pryor Memorial Hospital; aged 62; died in December, 1929, of cerebral hemorrhage.

George Elie Martineau, Grosse Isle, Que., Canada; Laval University Faculty of Medicine, Quebec, 1892; member of the Society of American Bacteriologists; superintendent of the quarantine station at Grosse Isle; aged 62; died recently.

William Joseph Charlton, Weston, Ont., Canada; University of Toronto Faculty of Medicine, 1882; served during the World War; formerly member of the school board, mayor, health officer and coroner; aged 73; died, Oct. 19, 1929.

John Osborne Palmer, Auburn, N. Y.; University of Buffalo School of Medicine, 1867; member of the Medical Society of the State of New York; aged 85; died, Dec. 2, 1929, of chronic myocarditis and arteriosclerosis.

Richard R. Canna ✠ Amsterdam, N. Y.; Syracuse University College of Medicine, 1905; on the staffs of St. Mary's and the City hospitals; aged 47; died, Nov. 3, 1929, as the result of injuries received in an automobile accident.

Harry Lee Wells, Des Moines, Iowa; Creighton University School of Medicine, Omaha, 1902; served during the World War; formerly member of the board of education of West Point, Neb.; aged 61; died, Dec. 6, 1929.

Joseph W. Grosvenor, Buffalo; Medical Department of the University of the City of New York, 1866; member of the Medical Society of the State of New York; aged 92; died, Dec. 19, 1929, of chronic myocarditis.

Victor Alwyn Mason ✠ Marshfield, Wis.; University of Toronto Faculty of Medicine, Toronto, Ont., Canada, 1906; formerly on the staff of St. Joseph's Hospital; aged 46; died, Dec. 3, 1929, of heart disease.

Edward Allen Sawyer, Gardner, Mass.; Medical Department of the University of the City of New York, 1883; member of the Massachusetts Medical Society; aged 72; died, Dec. 24, 1929, of heart disease.

Edgar Roscoe Stillman ✠ Troy, N. Y.; Albany (N. Y.) Medical College, 1899; formerly instructor of physiology at his alma mater; on the staff of the Samaritan Hospital; aged 54; died, Nov. 26, 1929.

Charles Rudolph Johnson, Gainesville, Texas; Kentucky School of Medicine, Louisville, 1892; member of the State Medical Association of Texas; aged 57; died, Nov. 22, 1929, of heart disease.

George L. Thompson, Mount Sterling, Ill.; Keokuk (Iowa) Medical College, 1896; member of the Illinois State Medical Society; aged 80; died in November, 1929, of acute dilatation of the heart.

Calvin Jacob Otto ✠ Allentown, Pa.; Jefferson Medical College of Philadelphia, 1884; aged 70; on the staff of the Sacred Heart Hospital, where he died, Dec. 21, 1929, of cerebral hemorrhage.

William J. Kirkpatrick, Farmington, Iowa; College of Physicians and Surgeons, Keokuk, 1887; member of the Iowa State Medical Society; aged 62; died, Dec. 5, 1929, of cerebral hemorrhage.

Elmer Clare Miller, Bangor, Pa.; Jefferson Medical College of Philadelphia, 1892; member of the Medical Society of the State of Pennsylvania; aged 61; died, Nov. 18, 1929, of myocarditis.

Clyde G. Reynolds ✠ Yreka, Calif.; University of Nebraska College of Medicine, Omaha, 1924; aged 33; died, Dec. 2, 1929, of injuries received when the automobile which he was driving overturned.

George Dexter Marshall ✠ Kokomo, Ind.; Central College of Physicians and Surgeons, Indianapolis, 1904; served during the World War; aged 57; died, Dec. 20, 1929, of heart disease.

William Jerome Lochman, Allentown, Pa.; University of Pennsylvania School of Medicine, Philadelphia, 1871; aged 78; died in December, 1929, as the result of injuries received in a fall.

William Montgomery Meigs, Philadelphia; University of Pennsylvania School of Medicine, Philadelphia, 1875; also a lawyer; aged 77; died, Dec. 30, 1929, of bronchopneumonia.

Grace Mabel Norris, Utica, N. Y.; Woman's Medical College of Baltimore, 1904; formerly county coroner; aged 49; died, Nov. 29, 1929, at the General Hospital, of carcinoma.

Andrew Robert Snyder ✠ Joplin, Mo.; Bellevue Hospital Medical College, New York, 1885; on the staff of St. John's Hospital; aged 70; died, Nov. 24, 1929, of angina pectoris.

John G. Smith ✠ Wahoo, Neb.; Ensworth Medical College, St. Joseph, Mo., 1891; for several years member of the city council; aged 70; died, Dec. 6, 1929, of carcinoma.

George Wilbert MacKeen, Halifax, N. S., Canada; Harvard University Medical School, Boston, 1896; served during the World War; aged 57; died in December, 1929.

John Carlton Duckworth, Sioux City, Iowa; College of Physicians and Surgeons, Keokuk, 1894; aged 57; died, Nov. 20, 1929, in a local hospital, following a prostatectomy.

Herman S. Herzfeld, Chicago; University of Varonezh, Russia, 1896; aged 58; died, Nov. 8, 1929, at Mount Sinai Hospital, of heart disease and chronic nephritis.

Willis E. Crowell, Boston; Eclectic Medical College of the City of New York, 1874; aged 79; died, Nov. 24, 1929, at the Boston State Hospital, of arteriosclerosis.

John H. Holmes, Winchester, Ky.; Howard University School of Medicine, Washington, D. C., 1890; aged 65; died, Dec. 2, 1929, of acute dilatation of the heart.

Harriette Bottsford Amy, Decorah, Iowa; Woman's Medical College of Pennsylvania, Philadelphia, 1875; aged 83; died, Nov. 25, 1929, at the Decorah Hospital.

Walter Cook Nason ✠ Ripon, Wis.; Dearborn Medical College, Chicago, 1906; aged 58; died, Dec. 5, 1929, at St. Agnes Hospital, Fond du Lac, of nephritis.

Walter P. Craven, Charlotte, N. C.; College of Physicians and Surgeons, Baltimore, 1883; Confederate veteran; aged 83; died, Dec. 5, 1929, of heart disease.

Thomas Conant Sawyer, Auburn, N. Y.; Albany Medical College, 1894; for many years health officer of Auburn; aged 59; died, Dec. 10, 1929, of heart disease.

John W. Van Winkle ✠ Chicago; Medical Department of the University of the City of New York, 1878; aged 79; died, January 1, of bronchopneumonia.

Lucy Carlton Reed Waite ✠ Southbridge, Mass.; Cornell University Medical College, New York, 1907; aged 47; died, Dec. 27, 1929, of pneumonia.

Arthur Washington Thomas, Montreal, Que., Canada; University of Toronto (Ont.) Faculty of Medicine, 1905; aged 50; died, Oct. 30, 1929.

Barclay J. Jones, Knoxville, Tenn.; Chattanooga (Tenn.) Medical College, 1907; aged 61; was murdered at his home, Dec. 24, 1929, by a servant.

John Henry Brice, Cisco, Texas; Fort Worth School of Medicine, 1903; health officer of Cisco; aged 52; died, Dec. 7, 1929, of a gunshot wound.

Cyrus Harvey Smith, La Salle, Ill.; Rush Medical College, Chicago, 1895; aged 60; died, Nov. 29, 1929, at Abingdon, of carcinoma of the bladder.

Bartholomew R. Valls, Wharton, Texas; Jefferson Medical College of Philadelphia, 1886; aged 66; died in December, 1929, of cerebral hemorrhage.

John Harvey Miller ✠ Harrisburg, Pa.; Jefferson Medical College of Philadelphia, 1896; aged 62; died, Nov. 23, 1929, of chronic myocarditis.

James Rea Maxwell ✠ Parkersburg, Pa.; Jefferson Medical College of Philadelphia, 1888; aged 67; died in December, 1929, of heart disease.

Albert S. Gockley, Carroll, Iowa; Medical Department of the University of the City of New York, 1880; aged 74; died, Nov. 14, 1929.

G. Clarence Hamilton ✠ Louisville, Ohio; College of Physicians and Surgeons, Baltimore, 1886; aged 64; died, Nov. 13, 1929.

Samuel Stewart, Thamesville, Ont., Canada; Victoria University Medical Department, Coburg, 1883; aged 70; died, Oct. 26, 1929.

Julius L. Monmonier, Brooklyn; New York Homeopathic Medical College, 1871; aged 82; died, Nov. 27, 1929, of cerebral thrombosis.

Daniel E. Smith, Wolfe City, Texas (licensed, under the Act of 1907); aged 63; died, Nov. 23, 1929, of influenza and pneumonia.

James Fremont Wellington, Brentwood, N. Y.; Homeopathic Hospital College, Cleveland, 1890; aged 64; died, Nov. 11, 1929.

David B. Davis, Thorntown, Ind. (licensed, Indiana, 1897); aged 90; died, Nov. 9, 1929, of lobar pneumonia and chronic nephritis.

John W. Conaway ✠ Hartley, Iowa; Iowa Medical College, Des Moines, 1885; aged 69; died, Dec. 24, 1929, of nephritis.

C. Marion Dodson, Baltimore; Baltimore Medical College, 1883; Civil War veteran; aged 87; died, Nov. 22, 1929, of heart disease.

James Earle Toogood, Reno, Nev.; College of Physicians and Surgeons of San Francisco, 1908; aged 49; died, Dec. 2, 1929.

Forney Knox Hollis, Gattman, Miss.; Memphis (Tenn.) Hospital Medical College, 1904; aged 53; died, Nov. 17, 1929.

Leonard Goshorn, Gentry, Ark.; Keokuk (Iowa) Medical College, 1905; aged 53; died in December, 1929, of pneumonia.

Frank Sellers Ullom ✠ Waynesburg, Pa.; Jefferson Medical College of Philadelphia, 1903; aged 51; died, Oct. 29, 1929.

Prosper Synotte, Les Eboulements, Que., Canada; Laval University Faculty of Medicine, 1890; aged 66; died recently.

Theodore J. Martin, Palmyra, Ind.; Physio-Medical College of Indiana, Indianapolis, 1885; aged 68; died, Oct. 24, 1929.

Daniel Franklin Royer ✠ Orange, Calif.; Jefferson Medical College of Philadelphia, 1875; aged 77; died, Oct. 28, 1929.

Uriah M. Stanley, Brantford, Ont., Canada; Trinity Medical College, Toronto, 1878; aged 76; died, Oct. 15, 1929.

John L. Cook, St. Louis; Keokuk (Iowa) Medical College, 1892; aged 61; died, Nov. 30, 1929, of heart disease.

James D. Kerr, Indianapolis; Medical College of Indiana, Indianapolis, 1898; aged 65; died, Nov. 5, 1929.

Ezekiel Wetmore Gallup, Stamford, N. Y.; Albany Medical College, 1866; aged 89; died, Nov. 2, 1929.

Bureau of Investigation

ANOTHER MAURICE LUNDIN FRAUD

The Bono Drug Company Debarred from the Use of the Mails

Maurice Lundin has been conducting a concern that he called the Bono Drug Company (and also Bono Company) in New York City and Jersey City, N. J. He purchased it about two years ago from one B. Kallenberg. The postal authorities have just debarred the Bono Drug Company and the Bono Company from the use of the mails because of the fraudulence of the business.

Under another name, Lundin, according to the federal authorities, is also engaged in marketing a small pneumatic ring called the "Potentor," supposed to be worn around the scrotum and penis for the cure of impotence. The sale of this device by one Julius Saur, with whom Lundin was formerly associated, was the basis of a fraud order in 1928. The facts on this case appeared in this department of THE JOURNAL, Dec. 8, 1928. Under still another name Lundin sells through the mails a device called the "Saddle," also sold as a cure for impotence; this was recently held obscene by the postal authorities. A few years ago a fraud order was issued against the Strong Chemical Company of Jersey City, N. J. (another Lundin enterprise), which was selling a glass vactum pump called the "Emperor Male Developer."

Lundin's Bono Drug Company sold three products: (1) "French Pep Tablets," said to be a cure for impotence, sexual debility, inflammation and enlargement of the prostate, "kidney trouble," "bladder trouble," etc.; (2) "French Pomade," which was a supplementary treatment to be used with the French Pep Tablets, and (3) "Bonol Balsam," which was supposed to grow hair on bald heads!

The French Pep Tablets were small red disks containing extract of damiana, asafetida, some bromides, aloin and zinc phosphide. They were to be taken internally. The French Pomade was a petrolatum mixture containing some red pepper and menthol scented with citronella. It was supposed to be applied on and around the base of the penis. Bonol Balsam was another petrolatum mixture with some salicylic acid and precipitated sulphur. It, of course, was supposed to be rubbed on bald heads. Lundin obtained his victims by purchasing "sucker lists" from concerns that deal in those commodities.

After analyzing these various preparations and giving careful consideration to the claims made for them, the Hon. Horace J. Donnelly, Solicitor for the Post Office Department, recommended to the Postmaster General that a fraud order be issued against the Bono Drug Company and the Bono Company, because the representations made by Lundin were false and fraudulent. On December 26, 1929, the Postmaster General issued such an order.

MOTHER NATURE'S MARVELOUS POWDER

Gypsum and Chalk as a Cure-All

Mother Nature's Marvelous Powder, sometimes called Mother Nature's Marvelous Remedy and sometimes P. G. Powder, is put on the market by Nature's Mineral Remedy Company, which does business from a postoffice box in Durango, Colorado. Nature's Mineral Remedy Company seems to be a trade name used by one W. C. Picking. More recently Picking, it appears, has organized another concern, known as the Colorado Natural Remedy Association of Denver. This also sells powdered rock (under the name "Kolorok") and it, too, is described as "Mother Nature's Powder."

From the advertising it appears that the "Marvelous Powder" is good for whatever ails you. We read:

> "It is to injured, diseased bodies, fiber, bone or flesh what food is to a starving man. Taken for disease of the stomach, intestines, kidneys or other internal organs it does two things: Supplies inorganic food to the sore parts and provides the BLOOD-STREAM with that in which it is deficient."

We are told that W. R. Black of Pagosa Springs, Colo., and Mrs. Dee Finch of Red Mesa, Colo., were both cured of ulcer of the stomach after taking the Marvelous Remedy. J. W. Lewis of Durango was under the doctor's care for nearly a year for kidney and bladder trouble; he tells us that he took the Marvelous Powder and, at the end of a month, was entirely cured! A. K. Miller, also of Durango, had pyorrhea; he deposes that he tried doctors and nothing did him any good and then he took the Powder and was cured! Also, the powder is recommended for diabetes, female troubles, goiter and piles.

The A. M. A. Chemical Laboratory was asked to determine the nature of this Marvelous Powder. The report follows:

LABORATORY REPORT

"One original box of Mother Nature's Marvelous Powder (Nature's Mineral Remedy Co., Durango, Colo.) was submitted to the A. M. A. Chemical Laboratory for examination. The carton contained 131.7 Gm. (approximately 4⅔ oz.) of a grayish white, finely ground powder, possessing neither odor nor taste. The reaction of the water solution to litmus was at first neutral, but on standing became weakly alkaline. Qualitative tests indicated the presence of calcium, sulphate, carbonate and traces of iron, magnesium and chloride.

"Quantitative determinations yielded the following:

Ash on ignition	77.3	per cent
Loss on drying (200 C)	15.75	per cent
Acid insoluble substance	0.3	per cent
Calcium (Ca^{++})	25.3	per cent
Sulphate (SO_4^{--})	51.0	per cent
Acid titration (calculated to carbon dioxide)	3.57	per cent

"These values may be calculated to:

Calcium sulphate ($CaSO_4$)	72.3	per cent
Calcium carbonate	9.9	per cent
Moisture (200 C.)	15.8	per cent
Acid insoluble substance (silica)	0.30	per cent
Undetermined	1.7	per cent

"From the foregoing, it appears that this product consists essentially of approximately 88 per cent of calcium sulphate (gypsum) and 10 per cent of calcium carbonate (chalk), containing probably a trace of calcium oxide (lime). A product of a similar composition may be prepared by mixing 9 parts of gypsum and 1 part of chalk."

Here, then, we have it: A mixture of chalk and gypsum that is said to be to diseased bodies "what food is to a starving man"!

Correspondence

IN AID OF AMERICAN MEDICAL BIOGRAPHY

To the Editor:—Dr. Isidor Fischer of Vienna is engaged in the preparation of supplementary volumes to the second edition of Hirsch's Biographisches Lexikon der hervorragenden Aerzte aller Zeiten und Völker (Berlin and Vienna, 1884-1886), which is the only international dictionary of medical biography in existence. The supplement will contain biographies of recent and living physicians, and Dr. Fischer is particularly anxious to obtain American material, the only condition being original laboratory and clinical work, important discoveries and inventions, publications, editorial work and suchlike. Any help that may be given him by the donation of Who's Whos, volumes of biographic sketches, clippings of important obituaries from medical periodicals, and the like, will be much appreciated. Such material may be transmitted directly to Dr. Fischer himself (address: Biberstrasse 15, Vienna, I, Austria).

F. H. GARRISON, M.D., Washington, D. C.

"VENTILATION AND HEALTH"

To the Editor:—I have read with great interest the editorial on ventilation and health in THE JOURNAL, Nov. 30, 1929, and find it a most stimulating and thoughtful contribution to the subject with which it deals. I was much surprised, however, to find reference in the editorial to a study by the New York Commission on Ventilation conducted in the Bellevue-Yorkville district of New York City. The results of our Bellevue-

Yorkville study and of our later studies in Syracuse have not yet been analyzed and interpreted by the commission. I have reason to believe that preliminary data were sent to THE JOURNAL and to other technical journals by a member of the commission staff now no longer connected with it. THE JOURNAL was of course entirely justified in commenting on matter so received, but I should be grateful if you would publish this note calling attention to the fact that the release was entirely unauthorized by the commission and that the properly digested results of the experiments will not be available for some months.

C.-E. A. WINSLOW, DR.P.H., New Haven, Conn.
Chairman, New York Commission on Ventilation.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

OXYGEN IN PNEUMONIA — STEAM TENT IN BRONCHOPNEUMONIA

To the Editor:—Please give the technic of administration of oxygen through a nasal catheter in lobar pneumonia, and by means of a chamber practical for use in the home. Please discuss means of control of amount of the gas. Discuss efficiency of atropine and the steam tent in bronchopneumonia in children, giving dosage of the drug for a child aged 2 years. Please omit name.

M.D., Michigan.

ANSWER.—Alvan L. Barach gives the following items of technic for the administration of oxygen by the nasal catheter:

"A catheter of small diameter, such as a number 10 French, is to be preferred because the larger sizes are more uncomfortable and more apt to cause mouth breathing. It is important to have the terminal one inch of the catheter perforated with six small holes, as the high rate of flow is better tolerated than when one hole is present. In the latter instance a vigorous stream of oxygen directed against the mucous membrane of the nasopharynx causes a burning painful sensation and may be responsible for the patient pulling the catheter out of the nose. The catheter should be cleaned at least once every twelve hours. It should be put in place by a physician or nurse after special instruction, being passed along the inferior surface of the nasal cavity until it strikes the posterior surface of the nasopharynx, then withdrawn one-half inch, passed over the forehead or cheek and fastened with adhesive tape. When more than 3 liters a minute of oxygen is employed, it is usually more comfortable to insert a catheter into each nostril and connect them over the forehead by a glass Y tube. The use of high pressure oxygen tanks is the only way to employ this kind of therapy with any assurance of a constant rate of flow. The low pressure tanks are quickly exhausted and very expensive and make it difficult to establish a constant output because the diminishing pressure results in a gradual lessening of the flow. There is no disadvantage to the use of the so-called commercial oxygen except that care is needed in the handling of the gage. A calibrated gage has been designed for this purpose, calibrated to deliver from 1 to 10 liters a minute, for use only with high pressure oxygen tanks. These calibrated valves may be obtained from the Oxweld-Acetylene Company or the Hoke Manufacturing Company, New York. Five liters of oxygen a minute delivered through a double catheter has been estimated to yield an average oxygen concentration of 38 per cent, the patient breathing through the nose." Such treatment might be given for fifteen minutes once every hour.

Barach also described and pictured an oxygen tent in THE JOURNAL, Oct. 9, 1926, p. 1213.

Keeping the air thoroughly moistened might be considered an important measure in favoring expectoration by thinning the mucus, and especially indicated as long as mucus is dense and difficult of expectoration. When, on the other hand, expectoration is profuse and watery, the steam tent would be of no use. In such a condition atropine might possibly be of benefit for its supposed influence in lessening secretion, though whether it does so in inflammatory exudates is a question. It is more likely to improve oxygenation of the blood by lessening bronchial spasm. It may also act as a circulatory stimulant, being especially valuable in collapse with "leaky skin." Children stand atropine well, and a 2 year old may be given as much as 0.2 mg. ($\frac{1}{300}$ grain) every four hours.

LACK OF TESTICULAR DEVELOPMENT AFTER PERIORCHITIS

To the Editor:—A boy, aged 13 years, developed normally until he became 5 years old, when he contracted a serous periorchitis, which healed after two years. Since that time the child has developed only slowly and has not shown any development of the genital organs. At present he is tall and thin, mentally rather overdeveloped, and the testicles and penis are like those of a 5 year old boy. He has never had an erection. Is there any method to induce sexual development? What are the results with the transplantation of human testis? Please omit my name.

M.D., New York.

ANSWER.—Testicular transplantation furnishes results of only short duration, if any. Occasionally, but rarely, organotherapy may obtain favorable results. A popular method is the hypodermic injection of an emulsion produced from the anterior lobe of the pituitary body.

TREATMENT OF ENCEPHALITIS

To the Editor:—What treatment, peroral, is of any advantage over scopolamine in epidemic encephalitis? Are flexor contractures of the hands and legs common in a long standing case? Kindly omit name.

M.D., Connecticut.

ANSWER.—Scopolamine hydrobromide as well as atropine hydrobromide is serviceable in the treatment of the rigidity found in postencephalitic parkinsonism. At times scopolamine action, at times atropine action, is more advantageous in given cases. Recently, some superiority has been claimed for the use of an allied drug, stramonium, which may be given in the form of a tincture. The accepted maximum dose of 1 cc. (15 minims) is far too small and at times as much as 75 minims or 150 drops may be given three times a day. Occasionally, the extract of belladonna in the form of a rectal suppository, 0.065 Gm. (1 grain) to the dose, three times a day, results in amelioration of the rigidity. All of these drugs should be administered in small doses at first and the dosage gradually increased to the maximum tolerance of the patient. The tremor often is not diminished by these drugs, but it is claimed that stramonium acts better in this direction.

Bulbocapnine is said to diminish the tremor by producing a certain rigidity in the muscles, but the results are not universally confirmed. Small doses of veratrum viride and of gelsemin at times diminish the tremor.

Flexor contractures of the upper extremities with the exception of the fingers and wrist are rare. Such contractures in the lower extremities often associated with vasomotor and supposed trophic disturbances, of cyanosis and edema, occur in a small percentage of cases but usually occur not in the types of parkinsonism resulting from epidemic encephalitis but in the presenile and senile forms of true Parkinson's disease.

ARMSTRONG'S OXYCATALYST

To the Editor:—The mental poise of a patient of mine, who recently submitted to a breast amputation for carcinoma, is being disturbed by the contents of a pamphlet which no doubt has been read by patients other than mine. The essayist is a "Prof. Robert A. Armstrong," directing chemist for the "Radium Research Foundation" of Los Angeles. The "Professor" makes a generous exhibition of his knowledge of the sciences; refers learnedly to the mysteries of both the "planetary and atomic universes;" calls attention to Einstein's theory of relativity; dwells on the properties of the electron; pays a deserved compliment to Mme. Curie and classifies the emanations of radium; delves into the biochemistry of normal and abnormal human protein; asserts the interrelationship of physics, chemistry, electricity and life; reviews various theories of cancer etiology; presents his own theory that cancer is a chemicophysical disturbance in which the "valence of nitrogen, phosphorus and sulphur as expressed in normal protein is in a state of imbalance"; proclaims the futility of local measures and emphasizes the need of correcting this "imbalance" through the blood stream; and finally offers a remedy for this chemical "imbalance"; viz., the intravenous administration of an "Oxycatalyst" containing the "alpha particles of radium." I am informed that this injection treatment commands a substantial fee.

An expression of opinion from you on the merits or demerits of this treatment will be of interest to physicians whose patients have read this pamphlet.

J. E. J., California.

ANSWER.—"Armstrong's Oxycatalyst" was discussed at some length in the Bureau of Investigation department of THE JOURNAL, May 19, 1928. Neither before nor since the article was published has any scientific evidence worthy of the name appeared to sustain the claims made for the Oxycatalyst, while there is increasing evidence that the exploitation of the product is much more concerned with economics than medicine. Two original ampules of Armstrong's Oxycatalyst were submitted to the A. M. A. Chemical Laboratory a few months ago. Each was found to contain about 10 cc. of a liquid in contact with some solid material. The label on one ampule indicated that it should be used before July 13, 1929, and on the other that it be

used before July 31, 1929. The examination of the product was completed, July 26, 1929. Neither the liquid nor the solid in either ampule hastened the discharge of a charged electroscope, indicating that the product was not radioactive. Qualitative tests disclosed the presence of chlorides, phosphates, sodium, iron, an oxidizing agent that was, apparently, chlorate, and small amounts of sulphates. The Laboratory concluded, from its investigation, that the specimens examined were nonradioactive preparations probably containing sodium chlorate, ferric chloride and sodium phosphate.

TREATMENT OF NEUROSYPHILIS

To the Editor:—A tabetic woman with a positive blood Wassermann reaction has had four intravenous injections of neoarsphenamine. I have also given by mouth mercury and chalk and potassium iodide. She has shown wonderful improvement. Would you be good enough to outline a complete course of treatment for her, using the arsenicals as well as other drugs. What form of arsenical would you advise that could be given intramuscularly instead of intravenously?

M.D., Ontario.

ANSWER.—Unfortunately there is as yet no agreement among experts as to the best method of treating this form of neurosyphilis. Stokes (Modern Clinical Syphilology, Philadelphia, W. B. Saunders Company, 1926) gives the following outline for an average treatment system in average gradually progressive neurosyphilis:

UNIT COURSE

1. Thirty injections of mercuric succinimide or chloride, 0.015 Gm. (¼ grain), intramuscularly five times weekly.

2. After the first seven to ten mercurial injections, begin arsphenamine 0.3 to 0.5 Gm. weekly, six to eight injections.

3. Potassium iodide by mouth, from 3 to 6 Gm. (50 to 100 grains), three times a day; or

4. Sodium iodide intravenously, three to five injections weekly, from 10 to 15 Gm. each.

5. Spinal fluid examination to determine the response.

6. An interim of from six weeks to four months between arsphenamine courses, to include one month's rest, forty rubs, one month's rest and reexamination.

SUBSEQUENT TREATMENT

7. If on reexamination progress has been favorable, symptoms are improved and the spinal fluid is approaching negative, repeat the course. If not, consider intraspinal therapy, or give a second unit course.

8. If intraspinal therapy is begun, give one injection every two weeks in combination with the preceding course.

9. If definite signs of paresis are present, consider tryparsamide.

10. In other types of neurosyphilis, give two or three such courses in the first nine to eighteen months:

From twelve to twenty-four arsphenamine injections.
Ninety mercury succinimide injections.
From 120 to 160 4-Gm. mercurial inunctions.
From 600 to 1,000 Gm. of iodide.

11. If symptomatic progress is favorable but the spinal fluid is still abnormal, one may give a fourth or fifth course or alternate bismuth compounds and rubs another year before observation; or one may wait from six months to a year with rest and no treatment at the end of the third course.

In case it is impossible to employ arsphenamine intravenously, but with a distinct understanding that it probably is inferior in potency, one may inject sulpharsphenamine intramuscularly dissolved in sterile, freshly distilled water or properly prepared ampule water, in the proportion of 0.1 Gm. to 0.3 cc. The therapeutic equivalent for each 0.1 Gm. of arsphenamine is about 0.15 Gm. of sulpharsphenamine.

As a simple and safe substitute for intraspinal therapy, spinal drainage may be resorted to, which consists of withdrawing immediately after injection of the arsenical as much spinal fluid as can be obtained without causing discomfort to the patient.

Tryparsamide and induction of fever by malaria inoculations or other means has also given some results in tabes, though they have not been as striking as in paresis.

DISCOLORATION OF SKIN BY FERROUS SULPHATE—EPIDERMOPHYTOSIS

To the Editor:—1. Would a solution of ferrous sulphate on the skin cause a permanent discoloration? 2. Would a case of chronic epidermophytosis cause a pigmentation on an exposed surface? Please omit name.

M.D., Washington.

ANSWER.—1. A solution of ferrous sulphate applied to an eroded surface may cause a pigmentation that remains for years (Pusey, W. A.: Brown Stains in the Skin from Wet Dressings of a Solution of Copperas, THE JOURNAL, Feb. 24, 1917, p. 627).

2. Epidermophyton infections seldom produce much pigment. The organism itself is not a pigment producer, as is *Microsporon furfur*, the cause of tinea versicolor; but any chronic inflammation, especially if accompanied by scratching, may cause pigmentation, and the epidermophyton infections are no exceptions to this rule.

Medical Education, Registration and Hospital Service

COMING EXAMINATIONS

CONNECTICUT: New Haven, Basic Science, Feb. 8, 1930. State Board of Healing Arts, 1895 Yale Station, New Haven, Conn.

ILLINOIS: Chicago, Jan. 21-23, 1930. Supt., Mr. Paul B. Johnson, Springfield, Ill.

MINNESOTA: Minneapolis, Jan. 21-23, 1930. Sec., Dr. E. T. Sanderson, 524 Lowry Medical Arts Bldg., St. Paul, Minn.

NATIONAL BOARD: Parts I and II, Feb. 12-14, 1930. In all centers where there are five or more candidates.

NEBRASKA: Omaha, Feb. 4-6, 1930. Sec., Mr. Ernest M. Pollard, Lincoln, Neb.

NEW YORK: New York City, Albany, Syracuse, Buffalo, Jan. 27-30, 1930. Chief, Mr. H. J. Hamilton, Educational Bldg., Albany, N. Y.

PHILIPPINE ISLANDS: Manila, Feb. 11, 1930. Sec., Dr. Jose V. Gloria, 341 Ronquillo Station, Cruz, Manila, P. I.

SOUTH DAKOTA: Huron, Jan. 21-22, 1930. Dir., Dr. H. R. Kenaston, Bonesteel, S. D.

VERMONT: Burlington, Feb. 11-13, 1930. Sec., Dr. W. Scott Nay, Underhill, Vt.

WYOMING: Cheyenne, Feb. 3, 1930. Sec., Dr. W. H. Hassed, State Capitol Bldg., Cheyenne, Wyo.

South Dakota July Examination

Dr. H. R. Kenaston, director of the division of Medical Licensure of the Board of Health and Medical Examinations of South Dakota, reports the oral, written and practical examination held at Rapid City, July 16-17, 1929. The examination covered 15 subjects and included 105 questions. An average of 75 per cent was required to pass. Six candidates were examined and passed. Nine physicians were licensed through reciprocity with other states. The following colleges were represented:

PASSED	Year Grad.	Per Cent
George Washington University College of Medicine	(1928)	92.1
Northwestern University Medical School	(1917)	85.9
Rush Medical College	(1924)	89.9
University of Illinois College of Medicine	(1929)	90.9
University of Minnesota Medical School	(1929)	85
University of Nebraska School of Medicine	(1920)	87.3

LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
Rush Medical College	(1902)	Kansas
State University of Iowa College of Medicine	(1925)	Iowa
University of Minnesota Medical School	(1924), (1929-2)	Minnesota
St. Louis University School of Medicine	(1925)	Minnesota
University of Nebraska College of Medicine	(1926), (1927)	Nebraska
Medical College of Ohio	(1903)	Indiana

Washington July Examination

Mr. Charles Maybury, director of the Department of Licenses of the State of Washington, reports the written examination held at Seattle, July 15-16, 1929. The report covered 8 subjects and included 10 questions. Not less than 60 per cent in any subject was required to pass. Thirty-five candidates were examined, 34 of whom passed and 1 failed. Twenty physicians were licensed through reciprocity with other states and 3 by endorsement of their credentials. The following colleges were represented:

PASSED	Year Grad.	Number
Stanford University School of Medicine	(1929)	1
University of Colorado School of Medicine	(1926-1), (1928-2)	3
Loyola University School of Medicine	(1929)	1
Northwestern University School of Med.	(1915-1), (1929-3)	4
Rush Medical College	(1922-1, (1928-1)	2
Indiana University School of Medicine	(1928)	1
University of Kansas School of Medicine	(1928)	1
St. Louis University School of Medicine	(1928)	1
Washington University School of Medicine	(1928)	1
University of Nebraska College of Med.	(1928-3), (1929-3)	6
Ohio State University College of Medicine	(1928)	1
University of Oregon Med. Sch.	(1927-1), (1928-4), (1919-1)	6
Jefferson Medical College	(1919)	1
University of Pennsylvania Medical School	(1928)	1
Vanderbilt University School of Medicine	(1915)	1
McGill University Faculty of Medicine	(1929)	1
University of Manitoba Faculty of Medicine	(1929)	2

FAILED	Year Grad.	Number
Royal College of Phys. Faculty of Medicine, Edinburgh	(1893)	1

LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
College of Medical Evangelists	(1924)	California
Northwestern University Medical School	(1925)	Penna.
Rush Medical College	(1905)	Illinois

(1905) Wisconsin, (1905) Montana, (1929-2) Oregon

State University of Iowa College of Medicine	(1928-2)	Iowa
Johns Hopkins University School of Medicine	(1928)	Maryland
University of Minnesota Medical School	(1920)	Minnesota
Creighton University School of Medicine	(1925), (1928)	Nebraska
University of Nebraska College of Medicine	(1906)	Nebraska
Ohio State University College of Medicine	(1926)	Ohio
University of Oregon Medical School	(1927), (1928-2)	Oregon
Temple University School of Medicine	(1928)	Oregon
McGill University Faculty of Medicine	(1927)	Oregon

College	ENDORSEMENT OF CREDENTIALS	Year Grad.	Endorsement with
University of Illinois College of Medicine		(1929)	N. B. M. Ex.
Harvard University Medical School		(1925)	N. B. M. Ex.
University of Pennsylvania School of Medicine		(1926)	N. B. M. Ex.

Medical Economics

CONTROL AND TYPES OF HOSPITAL SERVICE

C. RUFUS ROREM, PH.D., C.P.A.

WASHINGTON, D. C.

Preliminary to a study of capital investment in hospitals for the Committee on the Cost of Medical Care, an analysis has been made of the 6,852 hospitals registered by the American Medical Association. The analysis was made possible by utilization of the work sheets of the Council on Medical Education and Hospitals of the American Medical Association. The accompanying table sets forth the relationship between type of control and type of service, and the number of hospitals and hospital beds in each category. Hospitals have been classified in five groups, as to type of service: general, nervous and mental, tuberculosis, institutional, special. The footnote on the table indicates the smaller classes each group contains.

GENERAL HOSPITALS

Most of the general hospitals and beds are provided by nongovernmental groups. These groups may be classified as independent associations, religious bodies, individuals or partnerships, industrial enterprises, and fraternal orders. The first three groups combined control nearly four fifths of all general hospitals and approximately two thirds of all general hospital beds. The independent associations are for the most part organized as nonprofit institutions, although this classification also includes a certain number of hospitals organized and operated as private corporations for profit. Independent associations control 1,461 general hospitals with an average bed capacity of eighty; churches control 841 general hospitals with average accommodations for 119; individuals and partnerships conduct 1,270 hospitals with a bed capacity averaging twenty-two.

Industrial enterprises maintain 157 hospitals with a total capacity of 7,047. Certain railroads and large plants maintain large hospitals. Twenty of the hospitals contain nearly 3,000 of the available beds under industrial control. The remaining 137 hospitals are small, averaging approximately twenty-five beds for each institution.

Local governments (cities and counties) are an important factor in general hospital care. They provide nearly 11 per cent of the hospitals for general care. Their relatively large average size brings 67,096 general hospital beds under their control. The beds in these hospitals are usually available to all residents of the local communities. In some instances the county or city hospitals are the only ones serving their respective communities.

The federal and state governments have not made available a large number of beds for the public. The 232 federal general hospitals are intended for the use of certain limited groups, such as present or former members of the army and navy, Indians who are wards of the federal government, and merchant sailors for whom care is provided as a public health measure. The fifty-one state general hospitals are for the most part connected with state medical schools, although Iowa, Louisiana and Michigan maintain large hospitals for the service of the general population. The state of Pennsylvania has eleven general hospitals in different portions of the state.

HOSPITALS FOR NERVOUS AND MENTAL DISEASES

The outstanding fact concerning the institutions for nervous and mental diseases is the dominance of governmental bodies in providing hospital facilities. More than 95 per cent of the beds for nervous and mental patients are in the governmental hospitals. The various states have taken the major responsibility for the hospitalization of nervous and mental patients, with a total of 223 hospitals and 329,397 beds. The federal government limits itself to the care of the groups previously mentioned, the majority being former soldiers and sailors.

The counties rank third in the care of nervous and mental patients. Thirty-three of the fifty-three county nervous and mental hospitals are in Wisconsin. More than 18,000 of the 19,513 county nervous and mental beds are in the states of Wisconsin, Michigan, New Jersey and Pennsylvania. The nervous and mental patients hospitalized by cities are concentrated mainly in St. Louis, New York City and Philadelphia.

The accommodations for nervous and mental patients under nongovernmental auspices are small in bed capacity compared to those controlled by the states and other governments. The governmental hospitals contain an average of more than 1,300 beds per institution. The nervous and mental hospitals under church control contain on the average 206 beds. Those controlled by independent associations have on the average 100 available beds. The 131 nervous and mental institutions controlled by individuals and partnerships have bed capacities averaging only thirty-one. The state nervous and mental hospitals, with average bed capacities of approximately 1,500 each, tend to be fifty times as large as such hospitals under individual or partnership control.

TUBERCULOSIS

Three fourths of the beds in hospitals classified as primarily for tuberculosis patients are in government hospitals. The 46,293 governmental beds are about equally divided between those under federal and state control, on the one hand, and city and county control, on the other. The tuberculosis hospitals under nongovernmental control are relatively small, the church hospitals averaging 119 beds, the independent hospitals eighty-three, and those under individual control thirty-four beds per hospital. More than half the hospitals under individual and partnership control are located in the three states of Arizona, California and North Carolina.

INSTITUTIONAL HOSPITALS

The hospital beds available to inmates of public or private institutions are usually intended for general hospital service. State and federal institutions contain 57.5 per cent of the hospital beds of this type. County and city institutions contain 17.2 per cent of the hospital beds listed as institutional. The total number of hospital beds in institutions is less than 3 per cent of the hospital beds in the entire country.

SPECIAL HOSPITALS

There are many types of special hospitals, although the total number of beds, 42,788, is less than 5 per cent of those in the United States. The federal hospitals are for the care of such special diseases as trachoma and leprosy. The most common type of the state special hospital is the orthopedic, there being six such hospitals with a total capacity of 1,200 beds. Other state special hospitals may be grouped as follows: one isolation, two maternity, two skin and cancer, one eye, ear, nose and throat, two children's.

There are 109 special hospitals under local government auspices. Eighty-nine of these are isolation hospitals and contain 8,402 beds. Others are classified as follows: six chronic

and incurable, three venereal, three convalescent and rest, two skin and cancer, two orthopedic, two children's, one maternity, one eye, ear, nose and throat.

The special hospitals under church control number ninety-five including the following groups: forty-seven maternity, seven children's, fifteen convalescent and rest, fourteen chronic and incurable, five orthopedic, three eye, ear, nose and throat, three skin and cancer, one venereal.

Independent associations control 268 special hospitals, of the following types: eighteen chronic and incurable, seventy-one convalescent and rest, thirty-one orthopedic, forty-nine children's, twenty-four eye, ear, nose and throat; sixty-one maternity, six skin and cancer, two metabolic, two isolation, two drug and alcoholic, one radiologic, one cardiac.

Individuals and partnerships maintain a large group of special hospitals, relative to the total number of such hospitals government. The same may be said of the soldiers and sailors, as well as veterans who are hospitalized because of service in the army and navy.

The states have been concerned with the care of nervous and mental patients, the vast majority of such hospital beds being under state control. States have in some instances established special accommodations for tuberculous patients. Except in a few cases, and under special conditions, the state has not provided hospital accommodations for general medical and surgical care.

Counties and cities have diversified their interests in hospitalization. Of the 135,910 hospital beds under the control of local governments, 67,096 are in general hospitals which may be attended by the general public. Local governments have also provided a substantial number of isolation hospitals containing more than 8,000 beds.

Hospital Beds (Excluding Bassinets) in Hospitals Registered by American Medical Association, 1929, Classified by Control and Type of Service *

Control	General		Nervous & Mental		Tuberculosis		Institutional		Special		Totals	
	Hosp.	Beds	Hosp.	Beds	Hosp.	Beds	Hosp.	Beds	Hosp.	Beds	Hosp.	Beds
Federal	232	33,949	20	15,472	27	8,318	11	3,486	4	510	294	61,765
											4.3%	6.9%
State	51	13,992	223	329,397	60	14,453	247	10,134	14	1,783	595	369,759
											8.7%	41.4%
Total federal and state	283	47,941	243	344,869	87	22,801	258	13,621	18	2,293	889	431,524
	6.3%	12.9%	43.8%	87.0%	17.2%	56.8%	48.0%	57.2%	2.5%	5.3%		
County	221	24,563	53	19,513	154	15,021	46	2,770	15	1,502	489	63,231
											7.1%	7.1%
City	235	37,587	9	11,597	27	6,857	16	753	85	8,302	372	65,126
											5.4%	7.3%
City and county	33	4,946	2	73	14	1,612	5	604	9	318	63	7,553
											0.9%	0.9%
Total local governments	489	67,096	64	31,153	195	23,492	67	4,127	109	10,042	924	135,910
	10.8%	18.1%	11.6%	7.9%	33.4%	37.8%	12.5%	17.3%	15.2%	23.5%		
Church	841	100,342	29	4,123	24	2,872	76	1,645	95	5,631	1,066	114,613
											15.4%	12.8%
Independent associations	1,461	117,473	95	9,528	113	9,359	103	3,067	208	19,405	2,040	158,832
											29.8%	17.8%
Individual or partnership	1,270	28,323	131	4,064	82	2,818	3	26	213	4,479	1,699	39,710
											24.5%	4.5%
Total church, associations and individual or partnerships	3,572	246,138	246	17,715	219	15,049	182	4,738	576	29 515	4,795	313,155
	78.8%	66.3%	44.6%	4.5%	43.2%	24.3%	38.8%	19.9%	80.1%	69.0%		
Industrial	157	7,047	.....	.....	.....	.....	.....	.....	.....	.....	157	7,047
											2.3%	0.8%
Fraternal	34	2,365	.....	.....	6	657	31	1,338	16	938	87	5,298
											1.3%	0.6%
Total fraternal and industrial	191	9,412	.....	.....	6	657	31	1,338	16	938	244	12,345
	4.2%	2.5%			1.2%	1.1%	5.7%	5.6%	2.2%	2.2%		
Total all hospitals	4,535	370,587	553	356,737	507	61,999	538	21,823	719	42,788	6,852	892,934
	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Proportion of type to total	66.0%	41.5%	8.0%	44.1%	7.4%	6.9%	8.0%	2.7%	10.6%	4.8%	100%	100%

* General includes industrial, surgical and emergency; nervous and mental includes feebleminded and epileptic; special includes maternity, convalescent and rest, isolation, children's, eye, ear, nose and throat, orthopedic, skin and cancer, drug and alcohol, chronic and incurables, trachoma, venereal and others.

in the country. Among those most common are the following: eighty convalescent and rest, forty-eight eye, ear, nose and throat, fifty-three maternity, six orthopedic, four children's, three skin and cancer, six drug and alcoholic, two goiter, five chronic and incurable, five miscellaneous.

Fraternal orders operate thirteen orthopedic hospitals and three for convalescent patients.

SUMMARY

That certain types of hospital care are under certain types of control is apparent from a casual glance at the accompanying table. In the first place, governments have concerned themselves primarily with those cases which typically are concerned with long periods of hospitalization, such as nervous and mental diseases, tuberculosis, and medical and surgical services for persons continuously in the custody of the government. The federal government makes no provision for hospital care to the general public, except for the special cases of trachoma and leprosy. The Indians, of course, receive general hospital care, but they are to be regarded as special wards of the federal

The hospitalization of acutely sick and injured patients has been left largely to nongovernmental groups, as may be seen from the table. These groups have played a small part in the construction of hospitals for nervous and mental patients or those afflicted with tuberculosis.

Proprietary hospitals controlled by individuals and partnerships play a minor rôle in the provision of the total hospital plant and equipment. It would be highly desirable to know how many additional hospitals are organized for profit, and in future years it is hoped that the business corporations now classified along with the other "independent associations" can be separately itemized.

The capital investment per bed in a modern hospital is now so large that except for very small institutions the capital must usually be furnished by groups rather than by individuals. Although nearly one fourth of all the registered hospitals are owned by individuals or partnerships, they contain but 4.5 per cent of the total available hospital beds.

910 Seventeenth Street.

Book Notices

THE MECHANISM OF THE LARYNX. By V. E. Negus, M.S., F.R.C.S., Junior Surgeon for Diseases of the Throat and Nose, King's College Hospital, London. With an introduction by Sir Arthur Keith, F.R.S. Cloth. Price, $16.50. Pp. 528, with 160 illustrations. St. Louis: C. V. Mosby Company, 1929.

This is the report, if one may so term it, of a stupendous research conducted over a period of ten years. There is a foreword by Dr. Max A. Goldstein of St. Louis, with an introduction by Sir Arthur Keith, conservator of the museum, Royal College of Surgeons of England, in whose laboratory the work was done. The author states expressly that his description of the mechanism of the larynx as set forth is purely unconnected, and not a research into the causes of pathologic disturbances of the human organ or as an aid to the singing master. To him it seems of the greatest interest to make this study from a biologic point of view and to consider man merely in his right place; namely, as a member of the animal kingdom. At the end of the book, however, a summary is given of the structure and function of the human larynx for the benefit of those who are interested more especially in man. Beginning with the study of the evolution of the larynx, the author expresses the view that the primary use of the larynx is that of guardian to the respiratory system, to prevent the entrance of anything but air into the breathing spaces. Other chapters detail the modification required for olfaction, for respiration, for the retention of air in the lungs and for the rebreathing of air. Other chapters cover the subject of function and movement of the epiglottis during respiration, the modification of the larynx for deglutition, the regulation of intrathoracic pressure, the employment of sound as a means of communication, the mechanism of phonation, and the physiologic anatomy of the human larynx. Each chapter discusses its individual subject in great detail and is followed by a conclusion and summary so that reference to various divisions of the subject is made easy. An excellent bibliography and index are given together with two appendixes; one of observations on the evolution of man from the evidence in the larynx, and a second one of fifteen tables covering the habits of animals together with the anatomic structure of the upper air tract. This work represents an enormous amount of the most careful, painstaking, time consuming research, in comparative anatomy and physiology, and, as Dr. Keith says, "there is scarcely a page in this work without a passage in which some new truth is set forth but with such diffidence, modesty and unvarnished honesty that the unwary may fail to notice their merit." Every chapter, in fact, almost every paragraph, merits careful study. It is quite true, as the author himself has stated, that the book is not primarily for the practicing laryngologist. But this study and the facts set forth will greatly aid laryngologists in properly understanding many of the phases of the problems that confront them in their actual work. The author's style is clear, the illustrations are excellent, his treatment of the subject is logical. Altogether this great monograph will prove a veritable treasure trove to the man interested in the evolution of the function of the larynx; it is an achievement redounding to the credit of the author. It seems almost incredible that any one could duplicate, to say nothing of surpass, so brilliant an investigation of the innumerable details connected with the comparative anatomy and physiology of the larynx.

MECHANISM OF PSYCHIC LIFE. Introduction to the Study of Physiologic Psychology. By N. Kabanow. Paper. Pp. 159 with 30 illustrations, Moscow, 1928.

Professor Kabanow attempts to explain, in popular form, various psychic phenomena on the basis of anatomy and physiology of the central nervous system. These two fundamental branches of science, including the autonomic nervous system, are covered in forty-four pages and twenty-eight illustrations. The rest of the book (about 114 pages) is given to the discussions of such abstract subjects as perceptions, judgment, emotions, will and character. Like many other compositions, this book has been published by the soviet union government for the general public and it must not therefore be expected to be original. The task of attempting simple and clear explanations of psychic phenomena is admittedly difficult, especially when one is ambitious enough to correlate them with anatomy and physiology. The author accomplishes his purpose with exceptional ability, though it is questionable whether a reader not well acquainted with the anatomy and physiology of the central nervous system will be able to derive the full benefit from this useful book.

BRAIN MECHANISMS AND INTELLIGENCE: A QUANTITATIVE STUDY OF INJURIES TO THE BRAIN. By K. S. Lashley. Cloth. Price, $3. Pp. 186, with illustrations. Chicago: University of Chicago Press, 1929.

Mental medicine has been handicapped, as it still is, by lack of knowledge of the etiologic factors. Progress in most fields of therapy has been facilitated by and often is directly dependent on advancement of knowledge of the vital mechanisms that normally perform the disordered functions. In mental medicine the lack of this knowledge has thrown practitioners back on empiric procedures, largely in the realm of intangibles. The results of this empiricism are often encouraging, and yet the limitations of this sort of psychotherapy are painfully apparent. These truisms are suggested by the program of investigation carried on for many years by Dr. Lashley, first at the University of Minnesota and more recently under the auspices of the Behavior Research Fund and the University of Chicago—a program directed specifically toward the problem, How do men and other animals use their brains in learning and other mental processes? The investigation began with rats because their behavior patterns are relatively simple and there is an enormous mass of accurate observation about them. As it is known precisely how rats learn to solve certain definite problems under standard conditions and as statistically valid quantitative measures of some of these processes have been obtained, this seems to be a good place to start a systematic search for the bodily mechanisms employed in this sort of behavior. The method is simple in principle but exceedingly exacting and time-consuming in practice. The rat is trained until he has solved a standardized problem—running a maze, discrimination between two lights, opening a problem box. Then various areas of the cerebral cortex or other parts of the nervous system are surgically removed and the effect is noted on the retention of the habit and the ability to relearn it, if it has been lost. Conversely, various accurately localized cortical ablations or other operations are performed and the defective rats are then tested for initial learning power as compared with normal controls. All of these experiments are controlled in a variety of ways and each is done on a sufficient number of individuals to allow for variability. Each animal is killed and the brain examined in serial sections, with a standardized method of recording the exact location of the lesion. Many hundreds of rats have been observed in this way and the data carefully analyzed. The result is impressive and, in many respects, unexpected and surprising—to Dr. Lashley as well as to the rest of us. A similar program is in process with monkeys, and the comparison of the two series of observations is sure to shed much light on the problems of human cortical organization and function. The most conspicuous deficiency in the record of these observations lies in the fact that only the primary lesion is localized. The secondary degenerations of the projection and association fibers of the injured neurons cannot be followed by the method employed, and this, of course, is a matter of fundamental importance. This can be done only by the Marchi method, which is appallingly tedious. But these studies are in process and considerable progress has already been made. These experiments, as Dr. Lashley says, raise more questions than they answer; but the method is sound, and indeed it is probably the only method at present available which is adapted to uncover some of the fundamental facts needed to reveal the apparatus of learning and "insight" and the integrating factors of behavior in general. The current conceptions of the reflex and the apparatus of conditioning of reflexes, and of mosaic localization of function in the brain are shaken to their foundations. Nothing satisfactory has been suggested to replace them. The immediate effect of the observations so far published is to encourage a healthy skepticism regarding many of the most cherished dogmas of cerebral function. This is all to the good, and as more facts become available more practical formulations may be expected. That the administrators of the Behavior Research Fund of Chicago should so liberally support a fundamental investigation of this nature merits comment and commendation.

HANDBUCH DER PATHOGENEN MIKROORGANISMEN. Herausgegeben von W. Kolle, R. Kraus, und P. Uhlenhuth. Lieferung 31, Band I. Unspecifische Immunisierung. Von Prof. Dr. W. Weichardt. Die experimentelle Erforschung der Geschwülste vom Standpunkte der Infektions- und Immunitätslehre. Von Prof. Dr. W. Caspari. Third edition. Paper. Price, 14 marks. Pp. 1147-1334, with 13 illustrations. Jena: Gustav Fischer, 1929.

The great interest manifested in the last few years in the problems of "nonspecific immunization," "nonspecific protein therapy" and the like is attested by the extensive bibliography of approximately 500 titles appended to Weichardt's article which, the author is careful to explain, includes only entries containing some real contribution to knowledge. The article follows in the main the lines made familiar in this country by the writings of Petersen. The experimental production of tumors from the standpoint of infection and immunity is discussed at considerable length by Caspari, who likewise has assembled a formidable bibliography. The summing up is strongly opposed to the assumption of a specific infective agent.

RECENT ADVANCES IN CARDIOLOGY. By C. F. Terence East, M.A., M.D., F.R.C.P., Junior Physician, King's College Hospital, and C. W. Curtis Bain, M.C., M.B., M.R.C.P., Assistant Physician, Harrogate Infirmary. Cloth. Price, $3.50. Pp. 342, with 69 illustrations. Philadelphia: P. Blakiston's Son & Company, 1929.

From a careful study of many monographs and magazine articles of the last two decades, the authors have produced a book that is far superior to the ordinary compilation. The thoroughness with which the literature has been reviewed, the good judgment shown in rejecting the insignificant and the repetitious, together with the fairness and wisdom of the editorial comment, make the book a valuable and reliable epitome of recent cardiology. One occasionally wonders why certain facts that might be assumed as known and that really are not recent are taken up. But this is evidently done so as to increase the usefulness of the volume to the student or practitioner whose knowledge of these topics may be a bit hazy or whose memory is a little unretentive. Naturally, some subjects appear to be handled in a more satisfactory way than are others. Rheumatic carditis, for example, seems to be more keenly discussed than the so-called bacterial or infectious types of the disease. Under the heart in anesthesia there is no mention of ethylene gas as an anesthetic, though for some time this has been extensively used in America. In general, however, the reviews are satisfactory; e. g., the chapters on cardiac irregularities. A brief practical outline of quinidine therapy is offered. Angina pectoris is well handled. Wisely, surgery in this condition is regarded as still of uncertain value. The authors are clearly on the side of the coronary artery group rather than the aorta group in their views as to the origin of angina. That coronary thrombosis has now become well known in England is shown by the understanding review of the subject. There is a complete outline of digitalis therapy. All through the book, free and helpful use is made of electrocardiograms. It is a pleasure to note that the authors make no apology for this action: "Throughout we have considered the electrocardiogram as part of the clinical picture, as, in our view, it should be so regarded, when it is available, and not as a mystery apart." There are some rather odd and questionable uses of words, and not a few bald errors in English; i. e., out and out grammatical mistakes. These lessen the enjoyment that comes from reading a book which, on the whole, is so deserving of commendation.

PROCTOLOGY: A Treatise on the Malformations, Injuries and Diseases of the Rectum, Anus and Pelvic Colon. By Frank C. Yeomans, A.B., M.D., F.A.C.S., Professor of Proctology, New York Polyclinic Medical School. Cloth. Price, $12. Pp. 661, with 421 illustrations. New York: D. Appleton & Company, 1929.

The author directs considerable attention to the different methods utilized in diagnosing lesions of the rectum, anus and pelvic colon, and emphasizes direct observation with instruments. The organization of the book is systematic and useful. The illustrations are of considerable aid in clarifying the text. The therapeutic methods include a complete account of those employed by proctologists, with especial emphasis on those which may be easily utilized in the office and the hospital. The chapters on hemorrhoids and malignant tumors are exceptionally fine. The book should be useful to both the surgeon and the internist

Medicolegal

Malpractice in Removal of Ureter; Hypothetical Questions

(Johnson v. Clarke (Calif.), 276 P. 1052)

The plaintiff sued the defendant, a physician and surgeon, for malpractice, alleging negligence in the removal of a portion of his left ureter and in allowing a portion of his kidney to remain. The superior court, Alameda County, gave the plaintiff judgment for $1,000, and he moved for a new trial on the issue of damages alone, which was granted. The defendant appealed to the district court of appeals, first district, division 2, from the judgment against him and from the order granting the plaintiff a new trial. The judgment and order in favor of the plaintiff were reversed.

In August, 1921, the plaintiff incurred an injury near the left kidney from which he suffered for nearly three years. June 22, 1924, the defendant operated on him and found that the left kidney was "a dead or functionless kidney," and that the left ureter failed to drain this kidney as it was completely blocked. Practically all of the interior of the kidney was removed and also a large amount of matter and pus. The plaintiff recovered quickly from the operation and his condition continued to improve until March, 1925, when he consulted a urologist for an examination. The urologist found that the left ureter was permanently stopped up and that no urine was being discharged from the left kidney. He found that the left kidney was dead and permanently functionless, but that there was an abscess in the lower portion of the ureter. He advised the plaintiff to have the ureter removed. April 14, 1925, the defendant again operated on the plaintiff and removed about five inches of the left ureter. About two months thereafter the plaintiff again suffered pain in the region of his left kidney and another surgeon removed the kidney capsule or shell. The operation of April 14, 1925, formed the basis for this action, the plaintiff claiming that the defendant was negligent in removing the portion of the ureter and in permitting a portion of the kidney to remain.

On completion of the plaintiff's case in the trial court, the defendant moved for a non-suit on the ground that no evidence had been produced to show any negligence on his part. The trial court denied the motion. It should have been granted, said the court of appeals, since there was no testimony that the defendant did not employ the requisite care and skill in ascertaining the condition of the plaintiff and in operating on him. The defendant testified that he removed the cells of the kidney in the first operation, and the medical testimony in the case was in accord that, if this was done, the ureter could be safely removed without fear of trouble from the kidney.

The defendant complained of a hypothetical question asked an expert witness for the plaintiff, which assumed that the plaintiff's left ureter was open at the time of the second operation and that pus was draining from the left kidney to the bladder through this ureter. In answer to this hypothetical question, this witness testified that it was bad medical practice to remove the ureter at that time. Other physicians called by the defendant were asked similar hypothetical questions on cross-examination by the plaintiff. Their answers were to the same effect that if the ureter was open and draining it would be bad medical practice to remove it as was done by the defendant. A hypothetical question, the court said, should be based on facts which are in evidence. It may assume any facts within the limits of the evidence but must not be unfair or misleading. Where the question assumes facts that conflict with the undisputed facts in the case, it is wholly valueless as a hypothetical question, and an answer based on such false assumption wholly fails to meet the demands of competent evidence. In a case such as this, the court continued, where the matter in issue is one within the knowledge of experts only, the expert evidence is conclusive. Here the only competent evidence was that the left kidney was dead and functionless, that the ureter was permanently closed and had ceased functioning as a drain for the kidney, and that, because of these conditions, the operation performed by the defendant was in accord with good medical practice and had no possible relation

to the condition which afterward arose in the plaintiff. Under such circumstances, the court said, the prejudice of the hypothetical questions which assumed facts directly contrary to the facts in evidence was apparent.

"Prescribing" Narcotics for Addicts

(Manning v. United States (U. S.), 31 Fed. (2d) 911)

Manning was convicted, in the district court, eastern district of Missouri, "for distributing narcotics contrary to law by means of prescriptions given to addicts for the purpose of permitting them to procure drugs from any drug store and thereby to satisfy their cravings therefor; the same to be self-administered without supervision and not in the legitimate practice of his profession by appellant (Manning) in the treatment of disease." He appealed to the circuit court of appeals, eighth circuit, where the judgment of the district court was affirmed.

In the district court, Manning demurred to the indictment and the only question before the circuit court of appeals was the validity of the district court's ruling on the demurrer. No testimony was before the circuit court of appeals. The indictment, the court of appeals said, contained all the essential elements of the offense. It specified the exact time and place, when and where the prescription was given, and the name of the person to whom it was issued. The prescription itself was set out in full. The indictment alleged that the prescription was filled and that the narcotic drugs were thus acquired and received by the person to whom the prescription was issued; that the appellant in thus prescribing was not acting in good faith and in the course of his professional practice for the purpose of treating any disease, but only for the purpose of enabling the person to whom the prescription was given to satisfy the cravings suffered by those addicted to the habitual use of narcotic drugs. The district court properly overruled the demurrer to the indictment.

That the Harrison Narcotic Act is constitutional, said the court, and that it does place restrictions on the right of a physician to prescribe narcotic drugs, can no longer successfully be denied. Manning had contended that the Harrison Narcotic Act left entirely with the physician the responsibility as to when, under what conditions, and for what purposes he will issue a prescription for narcotics; that the act places no restriction on a physician's right to prescribe such drugs, and that the direct control of medical practice in the states is beyond the power of the federal government. The court further held that since it is unlawful to dispense or distribute narcotic drugs, except in accordance with the provisions of the Harrison Narcotic Act, a physician who procures the dispensing thereof through the instrumentality of a prescription not issued in the course of his bona fide professional practice as a treatment for disease takes a principal part in the prohibited sale or distribution made, even though there is no conspiracy or unlawful understanding between him and the druggist who fills the prescription, and this is true whether the prescription is directed to a specific druggist or not. As substantiating this holding, the court quoted from the decision of the supreme court in *Jin Fuey Moy* v. *United States*, 254 U. S. 189, 41 S. Ct. 98:

> If "selling" must be confined to a parting with one's own property there might be difficulty. But by section 332 of the Criminal Code (18 USCA Sec. 550), "whoever directly commits any act constituting an offense defined in any law of the United States, or aids, abets, counsels, commands, induces, or procures its commission, is a principal." . . . It is easy to see, and the evidence in this case demonstrates, that one may take a principal part in a prohibited sale of an opium derivative belonging to another person by unlawfully issuing a prescription to the would-be purchaser. Hence there is no necessary repugnance between prescribing and selling, and the indictment must be sustained.

From the record before it, the circuit court of appeals inferred that the offense was of an aggravated nature and assumed that the evidence amply sustained the verdict.

Blindness: Light Perception as an Element of Vision.—The Laws of Texas, 1923, page 302, provide pensions for deserving blind persons. They provide, however, that no person shall be entitled to a pension who has vision greater than light perception. Expert testimony was introduced to show that the term "vision," as applied in scientific vision tests, is divided into four parts: light perception, which means ability merely to distinguish ordinary light from darkness; light projection, or ability to distinguish the source or location of the light; recognition of motion; and recognition of form. Recognition of form shows vision greater than recognition of motion, recognition of motion shows vision greater than light projection, and light projection in turn shows vision greater than light perception. The applicant was totally blind in the left eye, but with her right eye she could detect at a distance of one foot the direction of motion of a hand and count the fingers. She could distinguish the source of light and detect movement, to the extent required by the standards adopted. She failed, therefore, to show that she had no vision greater than light perception. The judgment of the circuit court awarding her a certificate entitling her to a place on the blind pension roll was therefore reversed.—*English v. Missouri Commission for the Blind (Mo.), 15 S. W. (2d) 790.*

Workmen's Compensation: Heart Disease and Compensable Injury.—The deceased, afflicted with a heart ailment, operated a revolving steam crane. Alarmed by the bursting of a steam pipe, he tried to pull the fire from under the boiler, but he was physically unable to do so and called a fellow workman to assist him. He quit work and returned to his home, where he died about four hours after the accident. Death was attributed to acute dilatation of the heart, brought on by overstress and overstrain and by excitement. The fact that the deceased had a disease of the heart, which may have contributed to his death, was held to be immaterial. The shock and excitement were concurring causes. It was not necessary that they should have been the sole, proximate cause. An award of compensation to the widow was affirmed.—*Monk v. Charcoal Iron Co. of America (Mich.), 224 N. W. 354.*

Malpractice: Failure to Ligate Artery After an Operation; Refusal to Respond to Call.—When there is a difference of opinion among skilled physicians as to whether or not the treatment of a patient was correct, there can be no recovery for malpractice; but this rule does not apply where there is no question as to skill, and the only question is whether the physician was or was not negligent in failing to ligate an artery that he had cut while incising a carbuncle. The refusal of a physician in the service of the hospital where the carbuncle was lanced to respond to a call later, in an emergency, after the patient had passed into the care of his family physician, was not important since another competent physician was available and was called.—*Rae v. Nelson et al. (Wash.), 277 P. 75.*

Insurance: Evidence from Books: Medical Attendance.—Although it is permissible to cross-examine a medical expert on the theory laid down in medical books on which he claims to have based his opinion, it is not permissible to introduce medical books in opposition to the testimony of a medical witness; the authors of such books are not under oath, are not subject to cross-examination, and afford the opposite party no chance to confront them. Casual conversation, and even definite questioning, does not of itself constitute medical attendance. Calling at a physician's office for medicine to relieve a temporary indisposition or for an examination to ascertain whether there is any ailment, and for nothing more, is not a consultation with a physician within the meaning of a question asked by a medical examiner for a life insurance company as to whether an applicant for insurance has consulted a physician.—*Brown v. Inter-State Business Men's Acc. Ass'n. of Des Moines, Iowa (Iowa), 224 N. W. 894.*

Society Proceedings

COMING MEETINGS

American College of Physicians, Minneapolis, February 10-17. Mr. E. R. Loveland, 133 South 36th Street, Philadelphia, Executive Secretary.
American Heart Association, New York, February 3. Dr. I. C. Riggin, 370 Seventh Avenue, New York, Executive Secretary.
American Orthopsychiatric Association, New York, February 21-22. Dr. George S. Stevenson, 370 Seventh Avenue, New York, Secretary.
Pacific Coast Surgical Association, Del Monte, Calif., February 7-8. Dr. E. L. Gilcreest, 384 Post Street, San Francisco, Secretary.

Current Medical Literature

AMERICAN

The Association library lends periodicals to Fellows of the Association and to individual subscribers to THE JOURNAL in continental United States and Canada for a period of three days. Issues of periodicals are kept on file for a period of five years only. Requests for issues of earlier date cannot be filled. Requests should be accompanied by stamps to cover postage (6 cents if one and 12 cents if two periodicals are requested). Periodicals published by the American Medical Association are not available for lending, but may be supplied on purchase order. Reprints as a rule are the property of authors and can be obtained for permanent possession only from them.

Titles marked with an asterisk (*) are abstracted below.

American Heart Journal, St. Louis

5: 129-256 (Dec.) 1929

*Acute Isolated Myocarditis. R. W. Scott and O. Saphir, Cleveland.—p. 129.
*R-T Interval in Myocardial Infarction. A. R. Barnes and M. B. Whitten, Rochester, Minn.—p. 142.
Age and Sex Incidence of Arterial Hypertension. J. E. F. Riseman and S. Weiss, Boston.—p. 172.
Distortion of Electrocardiogram by Capacitance. H. E. B. Pardee, New York.—p. 191.
Treatment of Adams-Stokes Syndrome Due to Auriculoventricular Block. F. W. Price and B. S. Nisse, London, England.—p. 197.
*Congenital Heart Disease; Extreme Congenital Pulmonary Stenosis (Tetralogy of Fallot); Collateral Pulmonary Circulation; Massive Right-Sided Vegetative Endocarditis. W. F. Harrison, Montreal, Canada.—p. 213.
Electrocardiograms of Coronary Occlusion Following Stab Wound in Left Ventricle. W. Bates and J. E. Talley, Philadelphia.—p. 232.
Pulmonary Stenosis with Bacterial Endocarditis in Adult. L. F. Bishop, L. F. Bishop, Jr., and S. C. Wallace, New York.—p. 238.

Acute Isolated Myocarditis.—Scott and Saphir record the clinical and pathologic observations made by them in two cases of acute myocarditis, which is described in past writings as acute isolated diffuse myocarditis, acute isolated interstitial myocarditis, and Fiedler's myocarditis. These terms are used to designate a rare form of heart disease which presents both clinically and pathologically a picture different from that seen in other inflammatory lesions of the myocardium. The clinical picture in all recorded cases is clearly one of progressive myocardial failure, rapid in some cases, more gradual in others, but unassociated with any of the better known factors leading to heart failure. That such cases as have been reported were obscure, so far as etiology is concerned, is indicated by the fact that in no instance of the recorded cases which came to necropsy was a correct antemortem diagnosis made.

R-T Interval in Myocardial Infarction.—The results obtained by Barnes and Whitten indicate that typical alterations of the R-T interval in infarction of the left ventricle are characteristic in type and enable one to localize the region involved. The identification of the region involved usually will indicate which coronary artery is the seat of trouble.

Congenital Heart Disease.—A clinicopathologic study has been made by Harrison of a case of congenital heart disease exhibiting the complex known as the tetralogy of Fallot, on which was superimposed a subacute bacterial endocarditis with massive vegetations involving chiefly the tricuspid valve. Associated anomalies in both the heart itself (Chiari's network) and elsewhere have been discussed with reference to their bearing on the theories of the etiology and pathogenesis of congenital cardiac defects. Particular reference has been made to the collateral pulmonary circulation in the presence of extreme pulmonary stenosis or atresia when the ductus arteriosus is closed. A consideration of this has been neglected in most of the literature on congenital pulmonary stenosis. In such cases the enlarged bronchial arteries usually supply the blood to the lungs, although sometimes the pericardials, mediastinals, coronaries, esophageals, subclavians or other arteries are called on to assume this function. In the present case the bronchial arteries were greatly enlarged. Aspects of the pathologic physiology in the case are discussed with reference to the degree of disturbance of the circulation and its relationship to prognosis. The danger from infections is noted, particularly the extraordinary forms of vegetative endocarditis to which such cases are especially prone. Most patients die from intercurrent diseases and not from cardiac failure.

American J. Dis. of Children, Chicago

38: 1125-1355 (Dec.) 1929

*Diagnosis of Tuberculosis of Tracheobronchial Glands. P. Armand-Delille and C. Lestocquoy, Paris, France.—p. 1125.
Tuberculin Skin Reactions. C. H. Smith, New York.—p. 1137.
*Size of Reacting Area in Intracutaneous Tuberculin Tests in Relation to Classification of Disease and Other Clinical Factors. L. B. Dickey, San Francisco.—p. 1155.
*Interpretation of Roentgenograms of Chest in Children Based on Observations at Necropsy: II. Tuberculosis. J. A. Bigler, Chicago.—p. 1166.
*Cardiospasm in New-Born Infant: Three Cases. T. L. Birnberg, St. Paul.—p. 1183.
*Intracranial Hemorrhage in New-Born Infant as Demonstrated by Roentgen Rays. M. H. Roberts, Atlanta, Ga.—p. 1196.
*Anomalies of Urinary Tract in Infants. A. S. Hurt, Jr., Rochester, Minn.—p. 1202.
Kahn Precipitation Test in Infancy and Early Childhood. J. Caffey and K. V. Kreidel, New York.—p. 1206.
Relations of Weight, Height and Age in Negro Children. L. T. Royster and C. N. Hulvey, University, Va.—p. 1222.
*Splenomegaly Portal Phlebosclerosis. S. J. Wilson and M. Lederer, New York.—p. 1231.
*Congenital Essential Thrombocytopenia. H. M. Greenwald and I. Sherman, New York.—p. 1245.
Pneumonic Anthrax in Child. J. C. McKitterick and G. J. Pearson, Burlington, Iowa.—p. 1252.
Bilateral Congenital Facial Paralysis. B. E. Bonar, Salt Lake City, and R. W. Owens, Magna, Utah.—p. 1256.
Juvenile Flat Feet. H. C. Schumm, Milwaukee.—p. 1273.
J. Starsmare 1664. J. Ruhrah, Baltimore.—p. 1277.

Diagnosis of Tuberculosis of Tracheobronchial Glands.—Armand-Delille and Lestocquoy emphasize the fact that the caseated tracheobronchial glands in infancy and childhood are difficult to diagnose. The physical signs, such as dulness and d'Espine sign, are not constant; the Pirquet test also is not sufficient. The only way to arrive at a proper diagnosis is to supervise all children who have been in frequent and close contact with a germ carrier, and to have good roentgenograms (frontal and lateral) carefully examined, comparing them with films from other cases in which roentgenographic observations have been checked at necropsy.

Size of Reacting Area in Intracutaneous Tuberculin Tests in Relation to Classification of Disease and Other Clinical Factors.—In a series of 700 positive reactions to tuberculin considered by Dickey, the average area of the erythema was about 459 sq. mm. The size of the skin reaction varied greatly in the groups studied, with the exception of that in very young children and that in children having phlyctenular conjunctivitis. There was no marked difference between the average size of the reaction in girls and that in boys. There was a gradual increase in the size of the reaction from the first to the sixth year. This may not mean an increase in the degree of sensitization. Children of oriental parentage, subject to continual reinfection, were more sensitive than other racial groups studied. Children who had had contact with tuberculous persons reacted more strongly than children who gave no history of contact with the disease. A relationship between sensitivity and the extent of the markings in roentgenograms is suggested, but no relation between sensitivity and other roentgenologic observations was found. Children suffering from phlyctenular conjunctivitis, and lymph node, bone and joint tuberculosis reacted more strongly than those with hilar disease, while the latter gave slightly stronger reactions than children suffering from an adult type of pulmonary tuberculosis. The reactions of patients classified as having "latent tuberculosis" averaged slightly less in size than the general average. The difference is not sufficient to relate the degree of sensitization to the degree of tuberculous activity.

Interpretation of Roentgenograms of Chest in Children Based on Observations at Necropsy: Tuberculosis.—A study was made by Bigler for the purpose of ascertaining what pathologic changes are present in the lungs of children to account for shadows in the roentgenograms of the chest. A careful history of every patient was taken, with repeated physical examinations and the necessary laboratory work. Roentgenograms of the chest were made at intervals during life. If the patient died, films were taken of the chest post mortem, and finally films were made of the excised lungs in many cases. He says that evidence of tuberculosis is not found pathologically as frequently as one would expect from the diagnoses of films of the chest. The incidence of tuberculosis in children admitted to the Children's Memorial Hospital is much lower than the

elimination of 8.7, 9.8 and 10.7 per cent, respectively. The length of addiction, the quantities taken just prior to admission, the age, the weight and the volume of urine did not influence this rate. Fecal excretion of morphine fell far below the urinary level but was too variable to justify general conclusions. Abrupt withdrawal of morphine resulted in a rapid fall in urinary excretion during the first four hours, followed by a much lower and constant level for the next twenty-six hours. The elimination of morphine in an addict suffering with lobar pneumonia, to whom 15 grains was administered daily throughout the illness and convalescence, showed the same level of excretion during the early part of the disease, following the crisis and during the convalescent period, but a rise in the period just before the crisis when he was critically ill. No unusual signs or symptoms appeared during the illness that could be attributed to the morphine.

General Summary of Opium Addiction.—This study by Light shows that morphine addiction is not characterized by physical deterioration or impairment of physical fitness aside from the addiction per se. There is no evidence of change in the circulatory, hepatic, renal or endocrine functions. When it is considered that these subjects had been addicted for at least five years, some of them for as long as twenty years, these negative observations are highly significant. The study offers substantial grounds for the belief that, were it possible to relieve the addict of his addiction, complete rehabilitation could be expected. The abrupt withdrawal of morphine was accompanied by only slight changes in the physiologic mechanisms studied, changes that did not afford an adequate explanation of the withdrawal symptoms. The readministration of morphine during the period of the withdrawal symptoms was not accompanied by return to normal of those few positive observations characteristic of the withdrawal period in spite of the apparent return of the addicts to a sense of well being. Schneider's test of physical fitness and the staircase climbing test indicated a poorer response than during the period of suffering. Following treatment and just before discharge from the hospital, the studies again indicate few changes except that the average leukocyte count was still high, a slight concentration of the blood still persisted, and a slight rise in the average for the p_H and lactic acid of the plasma and a decided fall in the efficiency tests were found. One cannot correlate these observations with the behavior of the patients.

Hemochromatosis in Metal Worker.—A typical case of advanced hemochromatosis occurring in a metal worker is reported by Wood and Fitz-Hugh with detailed clinical, laboratory and necropsy observations. The literature is reviewed and the possible etiologic rôle of chronic copper poisoning is discussed. The authors feel that chronic copper poisoning has not yet been proved to be the cause of this disease.

Experimental Left and Right Axis Deviation.—Electrocardiographic evidence of right and left axis deviation was produced by Lundy and Woodruff in the intact dog under ether anesthesia by distention of the respective ventricles. Acute dilatation of the right ventricle was produced in the intact dog with corresponding right axis deviation. Possible factors for the production of axis deviation and various arrhythmias of the heart are suggested. The possible importance of these and similarly acting factors as a mechanism for clinical changes of the electrocardiogram is discussed.

Archives of Pathology, Chicago

8: 881-1027 (Dec.) 1929

*Vascularization of Thoracic Aorta. H. F. Robertson, Toronto, Canada.—p. 881.
Unusual Type of Triatrial Heart. B. M. Patten and W. B. Taggart, Cleveland.—p. 894.
*Formation of Hyalin in Ovaries. M. A. Goldzieher and I. Sherman, New York.—p. 906.
*Hemangioblastoma of Cerebellum with Cyst Formation (Lindau's Disease): Case. P. Shapiro, Chicago.—p. 915.
Pathogenesis of Bacterial Endocarditis. K. Semsroth and R. Koch, Pittsburgh.—p. 921.
Mitochondria in Acute Experimental Nephrosis Due to Mercuric Chloride. R. A. Moore, S. Goldstein and A. Canowitz, Columbus, Ohio.—p. 930.
Primary Carcinoma of Liver with Metastasis to Bone. V. H. Moon, Philadelphia.—p. 938.
Whooping Cough: Site of Lesion. L. W. Sauer and L. Hambrecht, Evanston, Ill.—p. 944.
Thyroid Gland in Hyperthyroidism. F. R. Menne, Portland, Ore.—p. 954.

Vascularization of Thoracic Aorta.—Blood vessels were found by Robertson to be most numerous in the aortic wall where aortic disease, other than senile change, is the most commonly localized. A relation exists between the presence of certain lesions of the aortic wall and the distribution of the vasa vasorum.

Formation of Hyalin in Ovaries.—Hyalinization of the ovary was studied by Goldzieher and Sherman in sixty ovaries. Five types of hyaline bodies were described. They derive from lutein bodies, from atretic follicles, from lipoidal cells of the ovarian stroma, from ordinary stroma cells and from blood vessels, respectively. The histogenesis of a hyaline body can be distinguished only in the early stage of its formation. Combination forms are common.

Hemangioblastoma of Cerebellum with Cyst Formation (Lindau's Disease).—A case of hemangioblastoma of the cerebellum (Lindau's disease) with formation of a cyst, unique in its broad communication with the fourth ventricle, is reported by Shapiro. It was accompanied by a renal adenoma. The importance of angiomatosis of the retina as a diagnostic aid in distinguishing cerebellar angioma is emphasized.

California & Western Medicine, San Francisco

31: 377-448 (Dec.) 1929

Individualism in Medicine. W. S. Thayer, Baltimore.—p. 377.
*Pancreatitis: Treatment as Related to Gallbladder Infection. J. H. Breyer, Pasadena.—p. 382.
*Postoperative Massive Atelectasis. M. E. Mathes and E. Holman, San Francisco.—p. 386.
Certain Operative Procedures Employed in Ophthalmology. J. L. McCool, San Francisco.—p. 390.
Acute General Peritonitis. R. Ward, San Francisco.—p. 395.
Psychiatry in General Hospital. C. L. Allen, Los Angeles.—p. 398.
Acute Intestinal Obstruction: Treatment. W. B. Holden, Portland, Ore.—p. 403.
Chronic Pyuria in Children. A. M. Meads, Oakland.—p. 405.
Postoperative Pulmonary Embolism: Case. H. K. Bonn, Los Angeles.—p. 408.
*Aschheim-Zondek Hormone Test for Pregnancy. H. E. Kaplan, Stockton.—p. 412.
Painful Ear Nodule of Winkler and Foerster. G. D. Culver, San Francisco.—p. 414.
Lure of Medical History: Old Book by Benjamin Rush. G. R. Owen, Los Angeles.—p. 418.
Congenital Cystic Disease of Lung: Case. R. S. Tillotson, Woodland.—p. 420.
Closed Method for Draining Acute Empyema. J. E. Strode, Honolulu, T. H.—p. 422.
Tumors of Carotid Body: Case. W. H. Budge, Ogden, Utah.—p. 423.

Treatment of Pancreatitis as Related to Gallbladder Infection.—Breyer urges that, in all operations in the upper part of the abdomen, the pancreas should be examined. Operation for acute pancreatitis is done to help a patient over a serious emergency. No curative measures should be undertaken. The gallbladder should be drained. Not much time should be spent in removing stones. In chronic pancreatitis, the object should be to remove the focus of infection. The postoperative complication of acute pancreatitis should be borne in mind in all operations on the biliary tract. Pancreatic asthenia requires supportive treatment, restoration of body fluids, and the use of dextrose and insulin. Three cases are cited.

Postoperative Massive Atelectasis.—Evidence that acute atelectasis is due to a central bronchial obstruction is furnished by Mathes and Holman by the report of a case of this postoperative complication on the left side in which a subjective feeling of "whistling" occurred, proceeding from under the sternum and traveling toward the left clavicle, coincident with the coughing up of a large amount of thick sputum and followed by the complete disappearance of all signs and symptoms.

Aschheim-Zondek Hormone Test for Pregnancy.—Kaplan's study of this test convinces him that it permits making a diagnosis of pregnancy before physical examination is positive, thereby differentiating the pregnant uterus from the slightly enlarged nonpregnant uterus. The earliest case of pregnancy examined was in a woman whose menstrual period was seven days overdue. There were several other women in the first three weeks of gestation, all of whom showed a positive test. The test is performed on female white albino mice, ranging in age from 4 to 6 weeks, their weight averaging about 15 Gm. Three-tenths cubic centimeter of urine is injected subcutaneously three times a day for three days. The injections should be

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at least three hours apart, although they can be separated by more time. The mice are killed and examined on the third day following the last injection, or the sixth day after the first injection. Following the injection of the urine of pregnant women, the ovaries of the mice become enlarged to three times the normal size and have a pinkish red appearance. The hemorrhagic areas are visible to the naked eye and stand out prominently on the surface of the ovary. The premature ripening follicles are easily seen as small yellow spots.

Illinois M. Journal, Oak Park

56: 385-452 (Dec.) 1929

*Influence of Sodium Chloride on Blood Pressure. R. S. Berghoff and A. S. Geraci, Chicago.—p. 395.
Hypertension. S. E. Munson, Springfield.—p. 397.
Hypotension. A. I. Kendall, Chicago.—p. 404.
Hypertension: Clinical Interpretation. H. O. Mosenthal, New York.—p. 406.
Lead Poisoning with Analysis of Employees of Enameling Plant. W. Pearce and R. A. Harris, Quincy.—p. 413.
Treatment of Hyperemesis Gravidarum. E. L. Cornell, Chicago.—p. 421.
Health Work of League of Nations. A. R. E. Wyant, Chicago.—p. 423.
*Suppurative Wounds: Use of Glycerin as Topical Application. M. E. Lichtenstein, Chicago.—p. 425.
*Recent Advances in Study of Bronchial Asthma. L. Unger, Chicago.—p. 426.
Cardiac Irregularities: Cause, Recognition and Treatment. J. G. Carr, Chicago.—p. 433.
Medical Education. F. H. Gunn, East St. Louis.—p. 440.
Relation of Asthma to Bronchopulmonary Infections and Inflammations. S. M. Feinberg, Chicago.—p. 442.
Ruptured Aortic Aneurysms. J. G. Carr and L. E. Hines, Chicago.—p. 446.

Influence of Sodium Chloride on Blood Pressure.—Fifty persons with various complaints were given 180 grains (11.7 Gm.) of sodium chloride daily for one month and the effects on the blood pressure were noted. Berghoff and Geraci summarize their study as follows: An excessive intake of sodium chloride (6 drachms, or 23 Gm.) markedly elevates blood pressure in true nephritis and almost equally so in arteriosclerosis. An excessive intake of sodium chloride even in persons with a normal and subnormal vascular tension elevates blood pressure. An excessive intake of sodium chloride (6 drachms) in patients with organic heart disease and a normal blood pressure showed a pronounced increase in every instance. An equal amount of sodium bicarbonate does not cause similar results. Sodium chloride in doses of 6 drachms daily (approximately twice the maximum consumed in the average normal diet) causes nausea in some individuals.

Use of Glycerin as Topical Application in Suppurative Wounds.—The use of glycerin dressings is not at all a new procedure, having been employed for a considerable time in various combinations, more commonly in a dilution with an equal part of 70 per cent alcohol. Lichtenstein asserts that glycerin, chemically pure, when applied to a suppurative wound at or slightly above body temperature, aids in diminishing the amount of wound exudate. Spreading lymphangitis and tissue swelling may be inhibited or diminished by frequent applications of this substance. Removal and reapplication of dressings impregnated with glycerin are not painful and do not occasion as much discomfort as dressings commonly do in suppurative wounds. Following the establishment of drainage from an infected wound subsequent to the use of hot wet dressings, glycerin applications are of distinct value in avoiding maceration and the development of superficial infections that commonly follow continuance of hot moist applications.

Recent Advances in Study of Bronchial Asthma.—Unger stresses the importance of heredity in bronchial asthma. The closer the relationship, the more probable it is that the children will develop one or another of the allergic diseases; and the closer the relationship, the earlier will such symptoms appear. The earlier the diagnosis of bronchial asthma is made and the earlier treatment is begun, the better the prognosis. After emphysema and chronic bronchitis have occurred there is less chance for complete recovery. Preventive treatment can be successful and demands propaganda against intermarriage between allergic patients, close observation of children of allergic families, and screening such children, so far as is possible, from the more common foreign substances that may precipitate attacks. The conception of allergy with its use of skin tests has been a big step forward and treatment based on it has enabled most patients with bronchial asthma to be either entirely or partially relieved of symptoms.

Johns Hopkins Hospital Bull., Baltimore

45: 335-404 (Dec.) 1929

*Pathogenesis of Glomerular Nephritis. W. T. Longcope, Baltimore.—p. 335.
Effect on Hemolytic Streptococci of Cultivating Them in Immune and Normal Serum. E. A. Bliss and H. L. Amoss, Baltimore.—p. 361.
*Reflexes in Deafferented Leg of Cat and Relation to Tonus. W. L. Sprong, Baltimore.—p. 371.

Pathogenesis of Glomerular Nephritis.—Longcope reviews the literature and analyzes fifty-five cases in an attempt to show an etiologic connection between this form of nephritis and infection. The disease occurs in two forms—the focal form and the diffuse form. The focal form occurs during acute infections and in the embolic type is usually ascribed to the deposition of bacteria in the capillary loops of the glomeruli, where they lead to a necrosis or to an inflammatory reaction. The diffuse form follows acute infections, proved to be due in such a large proportion of instances to hemolytic streptococci that for the present it is justifiable to consider at least one variety of acute glomerular nephritis as a manifestation of streptococcic infection. In view of the great frequency of acute streptococcic infections, it must be considered as a rare manifestation. It cannot be proved that acute glomerular nephritis depends on infection by a particular form of streptococcus or on the invasion of the blood or the involvement of the kidney by streptococci. There is some evidence, however, which indicates that patients suffering from acute nephritis are abnormally susceptible to the products of the growth of hemolytic streptococci; and it seems possible that some altered reaction of the tissue, such as occurs in allergy, or some unusual antibody response to the infection is the determining factor in the development of acute glomerular nephritis in individual cases. Permanent recovery is apparently more common in children than in adults. In a small number of adults, recovery has followed elimination of the infection and the infecting organism, while progression of the disease has been coincidental with the persistence or the recurrence of hemolytic streptococcus infections. It further appears evident that there are instances of Bright's disease that run their entire course as progressive or recurrent diffuse inflammatory glomerulitis without involvement of the renal arteries or arterioles and with changes in the renal tubules that may be regarded as secondary to the glomerular lesion and to the diffuse inflammatory reaction of the interstitial tissue. As a working hypothesis, therefore, Longcope suggests that it may be possible to differentiate, as one form of Bright's disease, a primary and specific glomerular nephritis which is to be interpreted probably as a manifestation of streptococcus infections in individuals who may be allergic to the streptococcus or its products of growth or who possess some other peculiar form of tissue response to a local streptococcic infection.

Reflexes in Deafferented Leg of Cat and Relation to Tonus.—In twenty adult cats, Sprong cut the dorsal roots from the third lumbar to the third sacral nerves inclusive, intradurally, and proximal to the ganglions. The altered properties of the legs thus deafferented were studied from ten to ninety-eight days after the operation. Responses in the deafferented leg derived from stimuli produced in each of the other legs, in the neck and in the labyrinths were separately identified. These responses showed two striking characteristics: increased force and extent and abrupt relaxation following the cessation of extrinsic stimulation. When cord injury was minimal, as shown by the absence of bladder incontinence and by the subsequent examination of microscopic sections, atonus was manifested in the deafferented muscles in the following ways: 1. The deafferented leg at rest was as flaccid (unresistant to manipulation) as the opposite denervated leg. 2. Reflex contractions were sudden and exaggerated but lacked conspicuously the gradual transition between extremes of tension so characteristic of tonic muscles. 3. After decerebration there was no decerebrate rigidity in the deafferented muscles, no lengthening or shortening reaction, no trace, on palpation, of the usual condition of plasticity. 4. The deafferented muscles

of the lower spine and pelvic girdle permitted the tonic antagonists of the opposite side to pull the pelvis laterally into a distorted posture. In two cats, irreversible rigidity or contracture developed in the deafferented leg; the same condition was experimentally produced in three more animals by injuring the spinal cord. The following facts regarding this phenomenon were demonstrated: It is the result of cord injury; the efferent innervation is essential; and, in the absence of local afferent nerves, there is a lower threshold for its occurrence.

Journal of Nervous & Mental Disease, New York

70: 577-684 (Dec.) 1929

Cerebellar Tumor with Seizures of Head Retraction Described by Wurffbain in 1691: Case. J. F. Fulton, Oxford, England.—p. 577.
Extensor Tonus After Transection of Brain Stem at Varying Levels. S. W. Ranson and J. C. Hinsey, Chicago.—p. 584.
*Basal Metabolism and Emotional States. G. W. Henry, White Plains, N. Y.—p. 598.
*Cerebellar and Spinal Complications Occurring During Pregnancy and Puerperium. B. J. Alpers and H. D. Palmer, Philadelphia.—p. 606.
Psychoses in Criminals. B. Karpman, Washington, D. C.—p. 622.

Basal Metabolism and Emotional States.—In an attempt to correlate basal metabolic processes with certain emotional states and their common psychomotor accompaniments, Henry discovered that there is a definite relationship between basal metabolic processes and emotional states regardless of the clinical type of personality disorder. Elated, overactive and overtalkative states are accompanied by acceleration of basal metabolic processes. Depressed, underactive and undertalkative states are accompanied by retardation of basal metabolic processes. Apprehensive, tense and agitated states usually imply an acceleration of basal metabolic processes, but this may be counteracted in some cases in which the feeling of depression is intense. Apathetic states are accompanied by a retardation in basal metabolic processes, which is not as great, however, as that associated with feelings of depression. Henry suggests the probability that some of the so-called normal variation in the metabolic rate is due to the different emotional states presented by the tested individual. The basal metabolic rate may be altered to a pathologic degree with no other apparent factor than an unusually intense emotional state, and therefore the interpretation of the rate in any given case, regardless of the type of illness, requires the consideration of the prevailing emotional state of the individual tested.

Cerebellar and Spinal Complications Occurring During Pregnancy and Puerperium.—Alpers and Palmer report four cases: 1. Myelitis occurring three days after delivery of a normal child with complete paralysis of the lower extremities with sensory loss and with incontinence of urine. Complete recovery resulted in nine months. 2. Myelitis following immediately after the birth of a child fifteen years ago. There was complete spastic paralysis of both lower extremities with sensory level at the eighth thoracic. 3. Myelitis occurring three weeks after the birth of a normal child, with complete spastic paraplegia with a sensory level at the fourth dorsal. 4. Friedreich's ataxia occurring in a woman, aged 31, initiated by paralysis of the legs immediately after childbirth. The occurrence of Friedreich's ataxia in pregnancy has not heretofore been reported.

Journal of Urology, Baltimore

22: 593-734 (Dec.) 1929

Short Sketches of Work of Eminent Western Urologists. H. G. Hamer, Seattle.—p. 593.
Diagnosis and Treatment of Movable Kidney. B. A. Thomas, Philadelphia.—p. 603.
Bilateral Renal Ectopia. P. E. McCown, Indianapolis.—p. 653.
Pyelocystostomy (Pyelocystostomosis) in Crossed Renal Dystopia. E. Hess, Erie, Pa.—p. 667.
*Effect of Hydrogen Ion Concentration on Bactericidal Action of Mercurochrome-220 Soluble on B. Coli. R. I. Hiller and A. E. Stamler, Chicago.—p. 699.
*Treatment of Gonorrheal Infections with Mercurochrome and Dextrose Intravenously. F. H. Redewill, J. E. Potter and H. Garrison.—p. 705.
Comparative Study of Direct Smears and Cultures in Three Thousand Urine Specimens. L. R. Seidman, M. G. Ellis and J. H. Hill, Baltimore.—p. 717.

Effect of Hydrogen Ion Concentration on Bactericidal Action of Mercurochrome-220 Soluble on B. Coli.—While working on fixed tissue stains, one of the authors discovered the necessity of a slightly acid reaction to make eosin stain. Since mercurochrome and eosin are closely allied chemically, it was thought that a possible parallel might exist in their staining power, which in the case of the mercurochrome would be manifested by an increase in its antiseptic action. A set of experiments by Hiller and Stamler disclosed that when a small amount of a weak solution of mercurochrome-220 soluble was added to one of two sets of cultures of *B. coli* ranging in p_H from 7.5 to 5.3, good growth was obtained in the control cultures, and good growth was obtained in the alkaline zone of the mercurochromized culture. The mercurochromized cultures in the acid zone showed no growth except at p_H 6.3 to 5.9, inclusive. Dilution controls with water p_H 6.8 were sterile. When mercurochrome-220 soluble is used as an antiseptic in the urinary tract against *B. coli*, its bactericidal action would probably be increased by the administration of good doses of acid phosphate by mouth.

Treatment of Gonorrheal Infections with Mercurochrome and Dextrose Intravenously.—Redewill et al. state that their observations regarding the marked decrease of the toxicity of mercurochrome when administered in dextrose have corroborated those of other investigators. When mercurochrome is dissolved in dextrose solution, it should be injected immediately. Their work regarding the increase of the potency of mercurochrome by irradiation of the aqueous solution with the mercury arc light has been endorsed by leading investigators, as well as the fact that the toxicity is not increased in this way. Properly applied diathermy and infra-red radiation in various types of urologic infections act almost as specific agents in aiding to cure these conditions rapidly. The new "cold" neon light applicator devised by the authors opens a most promising field of modern therapy in treating the various approachable cavities of the body. The reasons that numerous adverse reports have been made regarding the intravenous treatment with mercurochrome are: First, unsatisfactory reactions were produced in borderland cases; second, the dye was given in overdosage in hopeless cases, and, third, mercurochrome, given in large amounts without dextrose, may produce alarming reactions even in healthy persons.

Missouri State M. Assn. Journal, Fulton

26: 579-622 (Dec.) 1929

Relation of Pain to Pulmonary Tuberculosis. S. Pritchard, Battle Creek, Mich.—p. 579.
Diseases of Chest Simulating Pulmonary Tuberculosis. W. J. Bryan, Flat River.—p. 580.
*Surgical Treatment of Pulmonary Tuberculosis. E. A. Graham, St. Louis.—p. 583.
*Basal Metabolism in Pulmonary Tuberculosis. A. McMahon and H. A. Klein, St. Louis.—p. 586.
One Way Out. G. H. Hoxie, Kansas City.—p. 590.
Binasal Hemianopsia. S. I. Schwab, St. Louis.—p. 592.
Value of Cytologic Study of Effusions. A. Goldman, St. Louis.—p. 593.

Surgical Treatment of Pulmonary Tuberculosis.—In a series of nineteen cases of unilateral tuberculosis, exclusive of empyema, in which Graham performed a complete extrapleural thoracoplasty, there have been two deaths ascribable directly to the operation. In one of these the operation was carried out in one stage under local anesthesia. The man died two days later of pulmonary edema. The other operative death was never satisfactorily explained. The patient was a woman who became comatose after the completion of the first stage and never regained consciousness. She died about twelve hours later. Postmortem examination of the brain was not permitted but there was a possibility of this being a case of cerebral embolism from the lung. These two deaths, therefore, make the operative mortality 10.5 per cent. One other patient died from miliary tuberculosis in the fifth week following the second stage of the operation. This death, together with the other two just mentioned, makes the mortality from all causes following the operation 15.7 per cent. One other patient developed evidence of extensive involvement of the other lung after the first stage had been completed. The operation was therefore not continued. The other patients are all greatly improved and all doing either their full amount of normal duties or a part of them. Some of the patients who were having frequent pulmonary hemorrhages have undoubtedly been saved from death. In all the cases except one, tubercle bacilli have disappeared from the sputum. In addition, Graham has performed this operation on five patients

with tuberculous empyema. There has been one death, in a man who, in addition to a tuberculous empyema, had diabetes and active syphilis. The remaining four patients are all clinically well. Formerly tuberculous empyema carried with it a mortality of about 100 per cent. This series of 80 per cent recoveries illustrates the hope engendered by this operation.

Basal Metabolism in Pulmonary Tuberculosis.—In forty cases of incipient, moderately advanced and far advanced tuberculosis, McMahon and Klein studied the basal metabolism. In incipient pulmonary tuberculosis the basal metabolic rate is within the normal limits, this fact serving as a differential diagnostic point. In the moderately advanced stage of the disease there is a slight increase in the basal metabolic rate. In the far advanced stage of the disease there is a more definite increase in the basal metabolic rate, the degree of elevation being dependent on the severity of the case. The stimulation of cellular metabolism may occur directly through the relative hyperactivity of the toxin stimulated thyroid gland, or indirectly through the visceral nervous system. The authors suggest that all advanced cases of tuberculosis with increased basal rates should be examined carefully before one makes a diagnosis of a complicating hyperthyroidism.

Pennsylvania M. Journal, Harrisburg

33: 123-204 (Dec.) 1929

*Therapeutic Effects of Pilocarpine in Case of Sympathicotonia. S. G. Stewart, Philadelphia.—p. 123.
*Therapeutic Effects of Encephalography. W. J. Gardner, Philadelphia.—p. 126.
*Use of Dextrose in Regulation of Body Weight. C. W. Nissler and B. Gordon, Philadelphia.—p. 132.
Therapeutic Use of Oxygen Tent: Nineteen Cases. L. H. Collins, Jr., Philadelphia.—p. 135.
Cancer of Larynx. L. H. Clerf, Philadelphia.—p. 137.
Recent Advances in Chemotherapy. J. A. Kolmer, Philadelphia.—p. 140.
Foundations for Functional Neuroses. D. J. McCarthy, Philadelphia.—p. 149.
Functional Nervous Disorders with Reactions of Circulatory System. W. L. Long, Philadelphia.—p. 154.
Nervous Reactions in Giardiasis. B. L. Keyes, Philadelphia.—p. 156.
Ophthalmoplegic Migraine: Case. W. S. Reese, Philadelphia.—p. 159.
Laryngeal Vertigo. F. J. Bishop, Scranton.—p. 160.
Unilateral Ophthalmoplegia Totalis Probably Due to Encephalitis Lethargica. J. D. Jackson, Erie.—p. 161.
Chronic Empyema of Antrum Simulating Sarcoma. C. R. Hughes, Philadelphia.—p. 162.
Coloboma of Right Optic Disk in Twelve-Year-Old Child. G. W. Schlindwein, Erie.—p. 162.
Confusion in Names of Drugs. J. R. Minehart, Philadelphia.—p. 163.

Therapeutic Effects of Pilocarpine in a Case of Sympathicotonia.—Stewart reports three cases in which the diagnosis of sympathicotonia was made and in which good results accrued from treatment with pilocarpine nitrate, 1 per cent solution, administered in daily doses by mouth.

Therapeutic Effects of Encephalography.—Fourteen patients with a clinical diagnosis of essential epilepsy were followed by Gardner for an average period of 9.3 months after encephalography. In this group five patients reported no recurrence of attacks over an average period of 8.4 months. In two of these patients, however, the follow-up period of four or five months does not exceed the longest free interval which these patients experienced prior to encephalography. In four cases the convulsive seizures were definitely less frequent than they had been prior to encephalography, the average follow-up interval being 12.5 months. Three patients noted practically no change in the frequency or severity of the attacks. Two patients stated definitely that they were worse. In this group the associated symptoms of headache, tinnitus and vertigo were relieved to the same extent as were the convulsive seizures. From these data it would seem that certain cases of convulsive seizures, post-traumatic headache, tinnitus and vertigo may be favorably influenced by the withdrawal of the cerebrospinal fluid from the subarachnoid space and its replacement by air. The exact cause of these post-traumatic sequelae is not known, and therefore the modus operandi by which this relief is obtained is not perfectly patent. However, the most common operative finding in post-traumatic and idiopathic epilepsy is a thickening of the arachnoid membrane, with local accumulation of cerebrospinal fluid beneath. Penfield has suggested that the relief of post-traumatic headache by air insufflation may result from the freeing of filamentous pathologic pia-arachnoid adhesions. When a compressible, nonsupporting cushion of air is substituted for the noncompressible cushion of cerebrospinal fluid in which the brain is normally suspended, the freeing of filamentous pia-arachnoid adhesions must necessarily follow. With this accomplished, it may be assumed that the cerebrospinal fluid circulation over the involved cortex will be restored to a more nearly normal condition. It would seem, therefore, that encephalography is a justifiable therapeutic measure in patients with post-traumatic convulsive seizures, headache, tinnitus and vertigo, and also in patients with a clinical diagnosis of idiopathic epilepsy.

Use of Dextrose in Regulation of Body Weight.—In a study of 360 obese patients, with or without disturbances other than overnutrition, Nissler and Gordon noted that a variation in the blood sugar of from 65 to 85 mg. per hundred cubic centimeters of blood occurred in thirty-four patients at approximately the same hour on different days, and in forty-two patients there was a fluctuation between 100 and 165 mg. In patients with the level of blood sugar at the low limit of normal, a close correlation existed between the occurrence of hypoglycemic-like symptoms, the craving for sugar, and the ingestion of carbohydrate. There were nine instances of hypoglycemic-like symptoms in individuals with elevated blood sugar who experienced relief following the intake of carbohydrate. Twelve patients had a history of gallbladder disease, and seventeen suggested a state of potential diabetes, if not actual diabetes, because glycosuria and hyperglycemia were noted before entry to the clinic, or were found in subsequent examinations. The excessive intake of carbohydrate was more common than the overindulgence in fat or protein. The influence of heredity in overnutrition was less constant apparently than the example displayed by older members of the family in the selection of food. In seven patients, the metabolic rates, according to the Benedict-Roth and Tissot methods, were below the accepted figures for normal individuals. In the remaining eighty-four patients observed, there was no striking variation from normal. The regimen used in treatment and the results noted were as follows: The patient tabulates accurately for three days the occurrence of symptoms, the extent of exercise, and the amount and type of food consumed. On the fourth day, if there is no contraindication to treatment, a 1,200 to 1,400 calory diet, consisting of clear soup, a liberal helping of 3 to 5 per cent vegetables, two to three pieces of bread and butter, one average portion of meat, two small potatoes, two glasses of milk, and one orange is prescribed. On the fifth day the moderately restricted diet is continued; but, in addition, 2 Gm. of readily available carbohydrate in the form of dextrose lozenges or powder is administered (approximately 30 Gm. daily) every half hour from 9:30 to 11 a. m., 2:30 to 5:30 p. m., and 8:30 to 9:30 p. m. (breakfast, 7:30 a. m.; lunch, 12:15 p. m.; dinner, 6:15 p. m.). On the sixth day the intake of bread is either reduced or discontinued (rarely), and the half-hourly dosage of dextrose is increased from 2 to 4 Gm. at 10:30 a. m. and 3 and 3:30 p. m. or at other times to relieve symptoms of fatigue, hunger, nervousness or weakness. Patients who fail to lose weight during the first two weeks of the regimen in most instances are treated successfully if from two to four tablespoonfuls of cottage cheese, a liberal helping of gelatin, and meat are added to the daily diet. The patients are urged to walk a quarter-mile leisurely in the morning and a half-mile in the afternoon at the beginning of the regimen. The distance is increased gradually until, at the end of two weeks, two miles is covered daily. The administration of dextrose is discontinued after one month and a moderately restricted diet (from 1,400 to 1,800 calories), including bread and ice cream, is prescribed. If further loss of weight is desired, the regimen is resumed after a rest period of from two to three weeks. So far there have been no untoward effects other than a few instances of transient headaches at the beginning of the diet, constipation, and a sensation of fulness in the stomach if the dosage of dextrose is excessive. The majority of patients are free from mental depression and craving for carbohydrate. No patient, unless extremely obese, is permitted to lose more than 4 pounds (1.8 Kg.) weekly. So far as determined, there have been no ill effects from eating dextrose as prescribed over a period of one year. The regimen has been found also to have value in the management of hypertension and disturbances of the circulation. In certain instances

of circulatory failure with edema of the legs, it appeared that the effects of digitalis and the Karell diet were more striking if dextrose was administered as a part of the general treatment. It appeared also that the oral administration of dextrose in divided doses was as effective as intravenous infusions, if not more so, and certainly was less disturbing to the patient. A series of patients with so-called carbohydrate indigestion characterized by tympanites, eructations, and pain in the abdomen were relieved following the reduction of the intake of starch at meal time and the administration between meals of from 20 to 30 Gm. of dextrose daily.

Public Health Reports, Washington, D. C.

44: 2971-3039 (Dec. 6) 1929

Leprosy with Evidences of Abnormalities in Carbohydrate Metabolism. N. E. Wayson, L. F. Badger and M. M. Dewar.—p. 2971.
Cooperative Rural Health Work of Public Health Service in Fiscal Year 1929. L. L. Lumsden.—p. 2983.

44: 3041-3094 (Dec. 13) 1929

Health and Scholastic Attainment. H. S. Diehl.—p. 3041.

Surgery, Gynecology & Obstetrics, Chicago

49: 737-868 (Dec.) 1929

Fascial Spaces of Foot and Bearing on Infections. M. Grodinsky, Omaha.—p. 737.
Postural Treatment of Postoperative Massive Atelectatic Collapse. C. G. Dyke, Orange City, Iowa, and M. C. Sosman, Boston.—p. 752.
*Tumors of Carotid Body. A. D. Bevan and E. R. McCarthy, Chicago. —p. 764.
*Pathologic Lesions of Gallbladder. C. J. Baumgartner, Rochester, Minn. —p. 780.
*Experimental Peritonitis: II. Effect of Hypertonic Dextrose Solution on Experimental Diffuse Peritonitis. J. R. Buchbinder, F. R. Heilman and G. C. Foster, Chicago.—p. 788.
*Absorption of Glucose from Colon. R. W. McNealy and J. D. Willems, Chicago.—p. 794.
Uterine Anomalies Due to Variations in Fusion of Muellerian Ducts. J. F. Puddicombe, Ottawa, Ontario.—p. 799.
*Relation of Maternal Pelvic Disease to Deformities in New-Born. L. Goldstein and D. P. Murphy, Philadelphia.—p. 804.
Management of Lesions of Posterior Wall of Duodenum. D. C. Balfour, Rochester, Minn.—p. 806.
Treatment of Ununited Fracture of Neck of Femur. F. H. Albee, New York.—p. 810.
Supernumerary Kidney: Case. H. L. Kretschmer, Chicago.—p. 818.
Large Cystic Myoma Situated in Left Broad Ligament and Almost Completely Separated from Uterus. F. H. Langley, Baltimore.—p. 831.
*Osteochondritis of Symphysis Pubis. E. L. Peirson, Jr., Salem, Mass.—p. 834.
Fractures of Carpus: Twenty-Five Unselected Cases. H. H. Ritter, New York.—p. 838.
End-Results After Billroth I Resection of Stomach as Modified by Dr. J. Schoemaker. A. A. Buytendorp, Maracaibo, Venezuela.—p. 843.
Fractures of Pelvis. R. Colp and R. T. Findlay, New York.—p. 847.
*Value of Walcher Position in Contracted Pelvis. J. Jarcho, New York. —p. 854.

Tumors of Carotid Body.—Bevan and McCarthy conclude that, in the future, neoplasms of the carotid body should not be removed when it is necessary to ligate the carotid arteries in order to complete the operation. If the common carotid and the internal carotid can be saved by careful dissection, done best under local anesthesia, the removal of a benign tumor of the carotid gland would be justified. If the surgeon had definite and satisfactory evidence that the tumor was malignant, the huge 30 per cent mortality involved in the ligation of the carotid arteries might be accepted in order to save the patient from death and from malignant disease. It is quite evident, however, that a malignant growth of the carotid gland involving these three arteries offers little prospect of a permanent cure even by the most extensive operation.

Pathologic Lesions of Gallbladder.—Baumgartner has prepared a grouping of diseases of the gallbladder based chiefly on the gross examination of 4,575 specimens removed at operation. The grouping is as follows: (1) chronic catarrhal cholecystitis; (2) "strawberry gallbladder," or "cholesterosis"; (3) chronic fibrous cholecystitis; (4) subacute and acute cholecystitis; (5) empyema of the gallbladder; (6) gangrene of the gallbladder; (7) hydrops of the gallbladder; (8) papilloma of the gallbladder; (9) adenoma of the gallbladder, and (10) malignancy of the gallbladder.

Effect of Hypertonic Dextrose Solution on Experimental Diffuse Peritonitis.—Buchbinder et al. assert that dextrose solution injected into the abdomen in the presence of a diffuse peritonitis during the period of spread not only failed to influence the mortality favorably but shortened the duration of life by 50 per cent. This action is probably due to a speeding up of the diffusion of the infection over a wide area of the peritoneal surface. The absorptive power of the peritoneum remained good through the second and third days of the disease, as was shown by the disappearance of the sugar from the peritoneal exudate at necropsy, but in those animals surviving four or five days the sugar test was positive, ranging from 2 to 4 per cent.

Absorption of Dextrose from Colon.—McNealy and Willems assert that there is no appreciable absorption of dextrose in 5 per cent aqueous solution from the colon, while from the ileum considerable absorption takes place. Tap water and physiologic solution of sodium chloride are absorbed rapidly by both ileum and colon.

Relation of Maternal Pelvic Disease to Deformities in New-Born.—Goldstein and Murphy conclude from their study that uterine or ovarian disease apparently has no relation to the production of deformities in the new-born child.

Osteochondritis of Symphysis Pubis.—Peirson reports four cases of osteochondritis of the symphysis pubis seen in a year. He believes that the condition is much more common than one would be led to believe from a review of the literature. The frequent lack of definite roentgen observations, marked chronicity of the condition, and the fact that many patients recover without operation may result in the diagnosis being missed. The most common etiology is infection as a result of suprapubic cystotomy. One of the four cases he reports followed directly from a simple suprapubic prostatectomy; a second one came either from this cause or as a result of a general septic process; a third case was apparently primary in nature; and a fourth case probably followed an operation for inguinal hernia. The most constant symptom was pain in the region of the pubis, radiating down the legs and made worse by motion. One case showed marked urinary symptoms. Definite tenderness is present over the pubis in every case; other signs of a local inflammatory process in the region of the symphysis may or may not be present. As the cartilage seems to be first involved, the roentgen observations may not be definite. They are particularly hard to interpret, as the symphysis pubis shows wide anatomic variations in the normal case.

Value of Walcher Position in Contracted Pelvis.—The consensus as stated in authoritative textbooks on obstetrics is that the use of the Walcher position in contracted pelvic conditions lengthens the anteroposterior diameter of the inlet sufficiently to help engagement. Jarcho states that, from a careful study of the literature and observations in seven cases by direct measurements of the true conjugate with an obstetric inclinometer, it would appear that this view is substantially correct. However, several qualifications should be stated. In a minority of cases, the Walcher position may not change the length of the conjugata vera or even reduce it. Also, it is necessary to bear in mind that estimations of the true conjugate from the diagonal may be misleading and what appears to be a case of relatively contracted pelvis may really be one of absolute contraction. Nevertheless there is no valid reason to doubt the efficacy of the Walcher position in many cases of minor degrees of pelvic contraction. Its use frequently avoids the necessity of surgical intervention.

West Virginia M. Journal, Charleston

25: 705-768 (Dec.) 1929

Modern Methods of Diagnosis in Gastro-Intestinal Disorders. R. C. Blankinship, Madison, Wis.—p. 705.
Blood Transfusion in Septicemias. C. L. Woodbridge, Montgomery.—p. 709.
Infection of Nasal Accessory Sinuses. E. A. Looper, Baltimore.—p. 710.
Advantages in Technic of Modified Lothrop Operation with Killian Procedure for Cure of Chronic Frontal Sinusitis. S. R. Skillern, Jr., Philadelphia.—p. 714.
Causes of Backache. W. E. Dodd, Martinsburg.—p. 723.
Rôle of Public School in Control of Tuberculosis. W. L. Rathbun, Cassadaga, N. Y.—p. 727.
Focal Infection in Dental Tissues. J. H. Mayo, Buckhannon.—p. 730.
Subcortical Spongioblastoma Multiforme. D. A. MacGregor, Wheeling. —p. 733.
Ovarian Cyst on Twisted Pedicle. C. B. Pride, Morgantown.—p. 736.
Hemolytic Jaundice. A. H. Grigg, Beckley.—p. 737.

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FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

British J. Actinotherapy, London

4: 157-178 (Nov.) 1929

Electrotherapy in Cutaneous Tuberculosis. W. K. Sibley.—p. 160.
Ultraviolet Irradiation in Prevention and Treatment of Rickets. E. Morton.—p. 162.
Ultraviolet Light During Lactation. D. E. Bunbury.—p. 164.
Treatment of Fractures by Physiotherapy. C. F. O. White.—p. 166.
Review of Colebrook Report on Irradiation of School Children. R. K. Brown.—p. 168.
Medical Review of British Spas: V. Buxton. M. B. Ray.—p. 170.

British J. Bio-Physics, London

2: 35-53 (Dec.) 1929

Ionization: Principles and Practice. A. R. Friel.—p. 37.
Incidence of Common Cold in Light Clinic. E. J. Deck.—p. 40.
Skin in Ultraviolet Therapy. A. Furniss.—p. 41.
High Frequency in Therapeutics: 5. Surgical Therapy. E. Browning. —p. 44.

British Medical Journal, London

2: 939-992 (Nov. 23) 1929

Treatment of Scoliosis. D. M. Aitken.—p. 939.
Training of Gynecologist. T. S. Cullen.—p. 941.
*Toxic Absorption Due to Focal Septic Lesions. A. F. MacCallan.—p. 943.
*Epidermal Infections with Yeastlike Organisms. G. B. Dowling.—p. 947.
*Diathermy Extirpation of Pharyngeal Tonsils. D. McKenzie.—p. 951.
*Addison's Anemia. A. H. Holmes.—p. 952.
*Acetic Anhydride Test of Boltz in Cerebrospinal Fluid. F. K. Herbert. —p. 953.
Full-Time Extra-Uterine Pregnancy. M. L. Ramsay.—p. 954.
*Traumatic Bilateral Pneumothorax: Simple Method of Treatment. H. Banks.—p. 954.
Traumatic Parotid Hernia in Child. R. Morton.—p. 955.
Piece of Stick, Five and a Half Inches Long, in Small Intestine. A. G. Young and J. K. Mukherji.—p. 955.

Toxic Absorption Due to Focal Septic Lesions.—MacCallan asserts that there are three paths whereby the products of focal sepsis may reach the eye: the first is by direct extension, the second by lymphatic absorption, and the third by deglutition of the products of tonsillar or dental sepsis and their subsequent absorption from the alimentary canal. The effects resulting from direct extension may occur from sepsis situated in the mouth (in open dental sepsis), tonsils, nasal mucous membrane, or accessory nasal sinuses. The effects produced may be blepharitis, inflammation of the meibomian glands, including both acute and chronic tarsal cysts, ordinary conjunctivitis, acute and chronic, phlyctenular conjunctivitis, episcleritis, corneal ulcer, dacryocystitis, and orbital cellulitis. The effects resulting from lymphatic absorption occur in closed dental sepsis, chronic tonsillitis, and chronic inflammations in any part of the body. These effects may be those already mentioned; also iritis, cyclitis, some forms of choroiditis and retinitis, embolism or thrombosis of the central artery of the retina, and thrombosis of the central vein of the retina or of one of its tributaries. MacCallan believes that acquired nontraumatic cataract has its inception in focal sepsis. The effects produced by deglutition of septic material and its absorption from the intestinal canal may occur in any inflammation of the mouth, nose or pharynx. They do not differ from those enumerated.

Epidermal Infections with Yeastlike Organisms.—Dowling has cultivated a fungus from dandruff which, when implanted on the skin, produces a condition clinically indistinguishable from seborrheic dermatitis. It can be recovered from the artificial lesion by culture and may be seen in a scraping of the lesion. The fungus appears to be a species of the *Monilia* type of fungus, though differing from other known pathogenic species of this genus in definite respects. Dowling believes it to be the spore of Malassez.

Diathermy Extirpation of Pharyngeal Tonsils.—McKenzie is convinced that diathermy coagulation will come to be the method of choice for removing tonsils in adults. It is unsuitable for children.

Addison's Anemia.—Holmes reports three cases diagnosed as Addison's anemia, which failed to respond to liver therapy. With these cases were simultaneously treated others of the same disease which gave a response to liver in every way comparable with that described by Minot and Murphy. Moreover, the methods of diagnosis and treatment employed in the successful and the unsuccessful cases were identical.

Acetic Anhydride Test of Boltz in Cerebrospinal Fluid.—Herbert's observations confirm the view that the acetic anhydride test of Boltz is a protein reaction similar to the glyoxylic reaction of Hopkins and Cole. A series of twenty-four cerebrospinal fluids from various cases was tested; these included cases of epilepsy, cerebral tumors, paresis, disseminated sclerosis, hysteria, and various types of meningitis. The intensity of the color given in the Boltz test was roughly proportional to the total protein content of the fluid, and the color given by fluids from patients with paresis was indistinguishable from that given by fluids of the same protein content derived from nonsyphilitic patients. For example, the fluid from a patient with paresis (total protein, 0.18 per cent) and the fluid from a patient with meningitis (total protein, 0.15 per cent) gave colors exactly similar in tint and intensity. On another occasion the fluid from the same paretic patient had a lower protein content (0.05 per cent) and then gave a negative result with the Boltz test.

Simple Method of Treatment of Traumatic Bilateral Pneumothorax.—Banks's patient was run over by a truck and sustained fractures of both clavicles and several ribs on both sides. There was subcutaneous surgical emphysema in both axillae and at the site of the fractured clavicles. The usual treatment of shock was instituted and a many-tailed bandage applied round the chest. One and a half hours later he was quite blue, respiration was practically absent, the pulse was imperceptible, and he was cold all over. His neck, as such, had ceased to exist; on each side from the zygomatic arch to the lower border of the pectoralis major the subcutaneous tissues were enormously distended with air. The skin presented a uniformly convex surface, and he looked like some weird fish, all head and shoulders. The emphysema also extended over the ribs on each side toward the back. The emphysema was displaced by pressure from the lower part of the right axilla, the ribs were defined, a puncture was made through the skin with a scalpel, and an ordinary hydrocele trocar and cannula were pushed through the intercostal space. When the trocar was withdrawn, air could be heard hissing out. The patient's condition immediately improved. Respiration, pulse and color became better. After the first escape of air, during inspiration air could be heard entering the pleural cavity and leaving it during expiration. A simple method of further emptying the pleural cavity was adopted. A finger was placed over the cannula during inspiration and removed during expiration. In this way the lung was enabled to expand further, for at each expiratory effort air escaped from the cannula. After about twenty breaths the cannula was removed. The patient's condition was now greatly improved. In half an hour the procedure was repeated on the left side of the chest. The following day his condition was good; both lungs appeared to be fully expanded, and the superficial emphysema had considerably subsided. He made an uninterrupted recovery.

2: 993-1040 (Nov. 30) 1929

Medical Research: Tree and Fruit. W. M. Fletcher.—p. 993.
River Pollution. H. M. Wilson.—p. 997.
Significance of Vitreous Opacities. T. L. de Courcy.—p. 999.
*Embolism at Bifurcation of Abdominal Aorta Treated by Operation: Case. J. le F. Burrow and E. R. Flint.—p. 1002.
Glucose: When and How To Use It. F. P. de Caux.—p. 1003.
*Traumatic Rupture of Stomach: Case. F. E. Bolton.—p. 1005.
Autoblood Transfusion in Two Cases of Ruptured Tubal Pregnancy. H. B. Butler.—p. 1006.
Sarcoma of Small Intestine: Three Cases. D. Robb.—p. 1007.
Telescopic Movement in Fractures. D. C. Corry.—p. 1007.
Diabetes Mellitus and Heredity. J. A. Parkes.—p. 1008.
Ruptured Dermoid Cyst. T. E. Coulson.—p. 1008.

Embolism at Bifurcation of Abdominal Aorta Treated by Operation.—Burrow and Flint's patient, a woman, aged 62, was not operated on until thirty-six hours after the onset. Circulation was, however, successfully reestablished. This is said to be the second reported case in which the circulation has been reestablished after so long an interval. The patient died twenty-four hours after the operation. The postmortem appearances were such as to suggest that at even so long an interval

after the onset it is worth while attempting to free the vessel from clot. The multiplicity of emboli in this case, and in many others reported, has been the determining factor in producing an unsuccessful result. The patient was easily tired and was out of sorts. There was a history of rheumatism in her youth, but she had enjoyed fairly good health on the whole up to a few weeks prior to admission to the hospital. The day before she was seen she was seized with a sudden and severe pain in the left iliac region, which was promptly followed by loss of power in both legs. The pain continued to be most severe to the right and left sides below the umbilicus, but settled down chiefly in the left iliac region a few hours before she was seen. She complained of complete loss of power and sensation in both legs. She was unable to urinate. There was no pulsation below the bifurcation of the abdominal aorta, and both legs were cold and pale. Short mitral presystolic and systolic murmurs were audible, and a diagnosis of thrombosis of the abdominal aorta was made. The abdomen was opened to the left of the middle line and the aorta exposed. There was no pulsation beyond about an inch (2.5 cm.) proximal to the bifurcation. The aorta was controlled digitally about 2½ inches (6.5 cm.) above the site of the clot and by a light rubber clamp, and then opened for 1¼ inches (3 cm.) longitudinally. Much dark clot extruded and was extracted from the aorta and both common iliac vessels; the clots were about 6 inches (15 cm.) in length. The aorta was stitched with interrupted through-and-through sutures of fine silk in one layer. When the aorta was released, pulsation returned at once in all the iliac vessels and could be felt easily in both popliteals. There was no leakage from the suture line or the stitch holes. At the subsequent postmortem examination all the veins of the legs were patent and showed no evidence of clotting; in view of this and the other observations, it seems reasonable to assume that death was due to clotting in the cerebral vessels, the clot being derived from the heart, and that death was not due in any way to the derangement of the circulation in the lower extremities or to its sudden return.

Traumatic Rupture of Stomach.—Bolton's patient fell from a ladder and was struck in the lower part of the abdomen by a piece of iron projecting about 12 feet below. He had had a full meal about one and a half hours previously. There were signs of shock, and the pulse was 92. There was no sign of any injury to the abdominal wall. The abdomen generally was held rigid but was not boardlike, and the patient sat up to take off a tight garment. There was no dulness in the flanks. Liver dulness was present, and there was no hyperesthesia to pin reflex. Pain was referred to the lower part of the abdomen and radiated down to the testicles. Clear urine had been passed twenty minutes before examination. Bolton decided to wait for further signs; after five and a half hours the pulse rose to 120, there were distinct signs of tympanites, and the leukocyte count was 15,300. He was therefore given a general anesthetic and the abdomen was opened. A hole with everted mucous membrane, and easily admitting the forefinger, was found on the anterior surface and near the greater curvature in the pyloric end of the stomach. There were no signs of any ulcer present. There were no signs of injury to any other viscus. The hole was sewed with Lembert over primary deep sutures, a peritoneal toilet was performed, and a drainage tube was placed in the under surface of the liver. The patient eventually made a good recovery.

Lancet, London

2: 1129-1180 (Nov. 30) 1929

Psychology and Medicine. H. Yellowlees.—p. 1129.
*Pitfalls in Urologic Diagnosis. R. M. Handfield-Jones.—p. 1135.
*Thrombosis of Superior Cerebellar Artery. C. Worster-Drought and I. M. Allen.—p. 1137.
*Auricular Fibrillation in Children. H. Cookson.—p. 1139.
*Dextrose Intolerance in Various Dermatoses. A. R. Somerford.—p. 1140.
Isolation of Brucella Abortus from Case of Undulant Fever. H. J. Nightingale and G. S. Wilson.—p. 1143.
*Importance of Transfusion in Treatment of Pernicious Anemia. A. Goodall and A. M. Calder.—p. 1144.

Pitfalls in Urologic Diagnosis.—Handfield-Jones discusses the differential diagnosis of acute pyelitis, hydronephrosis and symptomless hematuria. He says that one method of investigation of particular interest in renal lesions is the hyperesthesia tests of the skin in these cases. Renal lesions give a high proportion of positive tests, and the areas should always be mapped out if present. No negative hyperesthesia test is of any value, but a positive one may prove the conclusive piece of evidence needed. He stresses the point that in every case of abdominal pain the urine should be examined and the kidneys remembered as the possible source of the trouble.

Thrombosis of Superior Cerebellar Artery.—Worster-Drought and Allen describe a case of cerebral thrombosis in which the prominent early lesion was thrombosis of the left superior cerebellar artery. The syndrome of thrombosis of the superior cerebellar artery includes spontaneous movements on the side affected, together with the symptoms and signs of a unilateral lesion of the cerebellum on the same side. There appears to be no justification for including the sensory changes frequently present as a part of the syndrome of occlusion of the superior cerebellar artery; they are much more satisfactorily explained as the result of other thromboses in the small pontile branches of the basilar artery. When the superior cerebellar artery arises alone from the basilar artery the clinical picture of thrombosis of the vessel is that described and involves chiefly the arm; when, however, this vessel arises by a stem common to it and to the anterior inferior cerebellar artery, occlusion of this stem produces changes in the affected leg almost as definite as those in the affected arm. The changes in the cerebrospinal fluid are similar to those occurring in cases of spinal block; they are probably the result of encroachment of thrombotic areas on the cerebrospinal fluid system.

Auricular Fibrillation in Children.—Cookson reports that, in the fifteen years 1913-1928, auricular fibrillation was diagnosed in 1,164 cases admitted to the London Hospital; females were twice as numerous as males. There were thirty cases in children (under 17); five have been added from other sources, making thirty-five in all analyzed by Cookson. Rheumatic heart disease was the basis of the arrhythmia in all cases, and a history of the acute illness was lacking in only six. As is the rule in adults, failure was a familiar accompaniment of the inception of the new rhythm and occurred in twenty-two out of thirty in which satisfactory information on this point could be obtained. In five, failure had made its appearance while normal rhythm was present; in the remaining three, no failure was observed immediately or shortly after the onset. Clinically, mitral stenosis was diagnosed in twenty-five of the thirty-five cases, four of these presenting aortic incompetence in addition; in two the aortic valve alone was affected. The heart was enlarged to palpation in all and was considerably enlarged in seventeen. Thirty-one patients have now been traced, and of these twenty-three have died of heart disease after an average duration of ten months with auricular fibrillation, the maximum period being five years and the minimum three weeks.

Intolerance to Dextrose in Various Dermatoses.—Of 120 cases of all types of dermatoses, psoriasis, pruritus, lichen group, eczema, acne and coccogenic sycosis, tested by Somerford only twenty-eight (23.3 per cent) gave normal sugar readings. The other ninety-two showed some deviation from the normal, though in many cases the abnormality was only slight. In most cases it was of the "lag" type, an abnormality which points to some defect in the mechanism by which dextrose is stored in the liver as glycogen.

Importance of Transfusion in Treatment of Pernicious Anemia.—Cases are recorded by Goodall and Calder illustrating the importance of transfusion and, if necessary, of repeated transfusion in the severest examples of pernicious anemia. Transfusion of blood may be of the utmost service, either in giving a stimulus to the bone marrow that liver alone appears to be unable to give or in keeping the patient alive until response to liver treatment occurs.

Tubercle, London

11: 97-144 (Dec.) 1929

*After-Results of Gassing and Gunshot Wounds of Chest in Relation to Tuberculosis. G. B. Price.—p. 97.
Tuberculosis: Subject for Teaching Medicine. S. V. Pearson.—p. 108.
Electrocardiographic Studies in Artificial Pneumothorax: 110 Cases. I. D. Bronfin, S. Simon and L. T. Black.—p. 114.

After-Results of Gassing and Gunshot Wounds of Chest in Relation to Tuberculosis.—While "gassing" appears to bear a relatively unimportant part as regards the after-incidence of tuberculosis, in gunshot wound injuries of

the chest (all types, surface and penetrating), Price says that the incidence of pulmonary tuberculosis forms a small but appreciable percentage of not less than 0.5. This percentage, however, is more than double that occurring among the average civil population according to municipal and health statistics, and greatly in excess of such returns as are available in relation to the services; the latter returns, however, are more comparable since the services deal with a similar type. This percentage is likely to become considerably higher when final results can be formulated for the number of men disabled from chest trauma is a limited and decreasing one, while further similar cases of pulmonary tuberculosis in these men are likely to emerge. If the relative incidence of pulmonary tuberculosis could be applied to men suffering only from penetrating injuries of the chest, the percentage 0.5 would in all probability be considerably exceeded. Surface injuries not involving the thoracic cage and contents appear to be of relatively small importance in connection with the after-occurrence of pulmonary tuberculosis. When the pulmonary tissue has been definitely injured, and especially when a foreign body is retained in or near the damage area, activation of tuberculosis may occur in the organ affected, even at an indefinite period later, and it is logical to assume that there may be a direct relationship. This possible development, therefore, requires consideration when prognosis is under review.

Archives des Maladies du Cœur, etc., Paris

22: 641-704 (Oct.) 1929

*Erythremia of Altitude. C. Monge.—p. 641.
Intermediate Forms Between Rheumatic Endocarditis and Malignant Endocarditis. G. Paisseau and V. Oumansky.—p. 652.
*Experimental Reproduction of Lesions of Hodgkin's Disease. C. Brun. —p. 666.

Erythremia of Altitude.—The history of a man, aged 48, who developed this disease is reported by Monge. The patient had been born and had lived at sea level till the age of 12, when he became a resident in the Andes at an altitude of 4,700 meters (15,420 feet). His severe symptoms were relieved on descent to a lower altitude but recurred as soon as he returned to his home. In coma he was transported down from the mountains, but recovered so well that he could resume work as long as he remained at sea level. A comparative study of the basal metabolism led to the following conclusions: At high altitudes the basal metabolism of individuals who are acclimatized is normal; in individuals with acute erythremia but who are beginning to adapt themselves, it is diminished; in severe chronic cases of erythremia the basal metabolism is considerably increased.

Experimental Reproduction of Lesions of Hodgkin's Disease.—Brun reports that she was able to transmit the characteristic lesions, in one case by three passages from patients to guinea-pigs. Portions of the lymph nodes of two patients who died of the disease were inoculated into the peritoneal cavity of guinea-pigs. In the first case the animal showed loss of weight coincident with hyperleukocytosis and a decrease of red blood cells. It was killed seven months later. In the second experiment the animal died two months after inoculation. In each animal microscopic examination of the lymph nodes showed that they contained the characteristic Sternberg cells. Blood withdrawn from the heart of the first animal was citrated and injected intravenously into two other guinea-pigs. In one animal only 0.5 cc. was injected and it remained healthy. In the second animal 2 cc. of blood was injected; loss of weight, anemia and hyperleukocytosis were noted and it was killed eight months later. Sternberg cells were found in the mesenteric, axillary and inguinal lymph nodes and in the spleen. The suprarenals showed degeneration, but granulomatous transformations were not seen. The subcutaneous inoculation of a piece of liver from this animal into another guinea-pig caused loss of weight and hyperleukocytosis; the animal died ten months after the inoculation, but necropsy could not be done. Another guinea-pig in which pieces of lymph nodes had been inoculated again showed loss of weight and modifications in the blood count and in the cervical lymph nodes Sternberg cells were noted. In all animals bacteriologic examination had not revealed the presence of bacilli; however, the cultivation of a piece of a mesenteric lymph node from the guinea-pig in which the original lesions had been reproduced showed, after three weeks, colonies similar to those of tubercle bacilli. Brun states that in guinea-pigs the evolution of the disease appears to be as slow as in man in "chronic" types of cases, but that on the whole the evolution is variable and, as seen in one guinea-pig, a latent period may occur.

Bulletins et Mém. de la Soc. Nat. de Chirurgie, Paris

55: 1079-1122 (Oct. 26) 1929

Permanent Gastrostomy. L. Gernez.—p. 1107.
*Hemorrhagic Infarct of Testis Following Operation for Inguinal Hernia. Le Roy des Barres.—p. 1110.
Tumor of Abdominal Wall. E. Juvara.—p. 1116.
Foreign Body in Knee Joint. E. Juvara.—p. 1118.

Hemorrhagic Infarct of Testis Following Operation for Inguinal Hernia.—Le Roy des Barres' patient, aged 36, had been operated on for a hernia on the right side eight years previously. He had observed that for about a month after the operation the right testis was enlarged. It regained its normal size, although tenderness and pain on pressure persisted. Four and one-half years later, violent pain in the region where the operation had been done appeared and remained in greater or less intensity for about a year. The hernia then recurred and a second operation was made to repair it. Again the testis swelled and remained enlarged for a month. The swelling then decreased slightly but the testis was hard and anesthetic. The patient's general condition was good; there was no syphilis or any other infectious disease and an operation on the tumefied testis was indicated. On incision, an intratesticular hematoma was noted. An attempt was made to drain the testis, but the cavity refilled with blood and resection was done. The spermatic cord showed signs of constriction although the spermatic artery bled when incised. Microscopically, sclerosis of the blood vessels and seminiferous tubules was seen, with atrophy and degeneration of the latter. There was hyperplasia of the internal wall of the arteries and atrophy of the flattened veins. Throughout the glandular tissue were diffuse hemorrhages and collections of lymphocytes. Of especial interest in this case was the slow evolution of the infarct, which may explain the thickened condition of the arteries.

Journal d'Urologie Médicale et Chirurgicale, Paris

28: 297-424 (Oct.) 1929

Chyluria in Syphilis of Urinary Bladder. B. Valverde.—p. 297.
*Injury of Vena Cava Inferior: Two Cases. G. Nora.—p. 306.
*Fatty Calculi of Urinary Bladder: "Oleoliths" and Medicinal Calculi. H. Blanc.—p. 318.
Méchanism of Retention of Urine. E. G. Dragonas.—p. 341.

Injury of Vena Cava Inferior: Two Cases.—Nora considers clamping of the vessel preferable to suturing, as it is rapid and efficient and does not necessitate special instrumentation. The lumen of the vessel remains permeable and the diameter is only slightly narrowed. If clamping has been successful during the operation, suture or ligation may then be considered. His personal experience covers two cases, the injury occurring at nephrectomy. The first patient, a man aged 31, was operated on for hydropyonephrosis of the right kidney. Isolation of the kidney was difficult and a tear of the abdominal wall occurred, which was sutured. The ureter was then ligated. The ablation of the kidney was complicated by many adhesions, and an abundant hemorrhage occurred. An attempt to ligate the vena cava inferior caused further injury to the vessel. Nora applied artery forceps, which covered 3 mm. of the vessel. The operative wound was then closed over a drain. The forceps were removed on the fifth day, and recovery ensued without further complication. In the second patient, a woman aged 38, who had tuberculous pyonephrosis, nephrectomy of the right kidney was done. An injury of the vena cava inferior to the extent of about 5 mm. was clamped with artery forceps, which were removed on the sixth day. The patient recovered.

Fatty Calculi of Urinary Bladder: "Oleoliths" and Medicinal Calculi.—On the basis of his personal experience and consideration of the cases reported in the literature, Blanc points to the origin of certain soft calculi in the urinary bladder. He distinguishes endogenous fatty calculi, originating from human fat and for which the old term urostealiths may be retained, for fatty concretions of exogenous origin. These calculi may be of therapeutic or accidental origin. Blanc con-

siders the term "oleolith" as appropriate for one group in which the formation of calculi is initiated by an irrigation of the urinary bladder with aromatized oil. The case reports of five patients with oleoliths are given, three of which were personal observations of the author. The etiology of other fatty calculi may be traced to paraffin originating from a catheter or to stearin, suet, or the use of water insoluble lubricants such as oil of theobroma or, as in Blanc's personal case, petrolatum. In some patients silver salts were formed as the result of irrigation of the urinary bladder with certain drugs. Saponification of the aromatized oil may be caused by bacteria, especially in a diseased bladder. The calculi may be "soft" or friable, or may be coated with salts derived from the contents of the urinary bladder. Blanc points to the importance of a thorough washing out of the bladder with warm water after treatment with any oil or fatty substance and advises caution in their use in the treatment of urinary disorders.

Paris Médical

2: 269-308 (Oct. 5) 1929

Research in Neurology During 1929. H. Schaeffer.—p. 269.
*Tumor of Rathke's Pouch. G. Guillain and N. Péron.—p. 281.
Relation Between Disorders of Sympathetic Nervous System and Syphilitic Arthropathies. André-Thomas and C. Kudelski.—p. 286.
Arachnitis and Multiple Sclerosis. J. A. Barré.—p. 297.
*Subacute Combined Sclerosis of Spinal Cord Without Anemia. H. Schaeffer and Vialard.—p. 301.
*Epileptiform Seizures Following Intratracheal Injection of Iodized Poppy-Seed Oil. D. Olmer and G. Zuccoli.—p. 306.

Tumor of Rathke's (Craniopharyngeal) Pouch.—Guillain and Péron discuss this occurrence on the basis of their personal experience. Their patient, a girl aged 12, had shown symptoms of a nervous disorder for three years, with gradual increase in frequency and intensity of epileptic seizures. Decompressive trepanation gave only temporary relief, but as there were no clinical symptoms pointing to the presence of a tumor, surgical intervention did not appear indicated. Roentgen therapy was given but had to be discontinued as it aggravated the condition. The child died two years later. At necropsy a tumor was found in the suprahypophyseal region, where it had extended into the third ventricle of the brain. It was an epithelioma with hyaline and keratoid degeneration, infiltrations of calcium and cystic necrosis. As a result of the pathologicoanatomic study the great extent of the tumor was noted. Roentgen examination had shown the typical signs only at a far advanced stage. Guillain and Péron point to the importance of repeated roentgen control and consider surgical intervention as the best therapy in case of early identification and localization of the tumor.

Subacute Combined Sclerosis of Spinal Cord Without Anemia.—In Schaeffer and Vialard's patient, a woman aged 63, alternating periods of constipation and diarrhea, coincident with a decrease of vision and feebleness in the use of her limbs, had been noted two years previously. For six weeks before admission to the clinic she had to remain in bed on account of weakness. Examination showed that there was a generalized loss of fatty tissue and muscular tissue, although typical amyotrophy was absent. Her condition became worse; edema and frequent attacks of pain in the legs appeared, and a liquid diarrhea, which caused considerable dehydration, became chronic. However, there was no evidence of anemia. Her condition became rapidly worse and death ensued. Of especial interest on necropsy were the extensive lesions of the spinal cord. Some degeneration was noted in several nerves and had reached the peripheral nerve fibers, causing paresthesia of the legs. Examination of the gastric juice had not been done but lesions were not seen in any of the internal organs. Schaeffer and Vialard state that pernicious anemia can therefore not be held responsible for the condition and the etiology of the disease remains problematic.

Epileptiform Seizures Following Intratracheal Injection of Iodized Poppy-Seed Oil.—This occurrence is reported by Olmer and Zuccoli in a man, aged 39, in whom examination of the lungs with the help of iodized poppy-seed oil seemed indicated. There were no tubercle bacilli in his sputum, but a diffuse infiltration of the right lung with distinct hilum shadows and bronchial involvement was noted on roentgen examination. He had had malaria at the age of 9, but otherwise his previous history was negative. Shortly after injection of the oil he had two severe epileptiform seizures. Headache and a condition of nausea persisted for one day. The patient had not retained remembrance of the attacks and returned in good condition to his home. The authors consider the theory of reflex action or that of an air embolism through puncture of a small venule on injection as the cause of this occurrence.

Presse Médicale, Paris

37: 1405-1420 (Oct. 30) 1929

*Hemolytic Streptococci in Pharynx of Patients with Scarlet Fever. F. Coste, M. Leblond and P. E. Vannier.—p. 1405.

Hemolytic Streptococci in Pharynx of Patients with Scarlet Fever.—Coste et al. discuss the value of bacteriologic control of scarlet fever suspects and convalescents and the methods applied by Friedeman and Deicher, derived in consequence of the theory of the etiology of scarlet fever as stated by the Dicks. From a review of the literature and on the basis of their personal experience, the authors state that a blood culture of the pharyngeal mucus should be made in every case in which there is suspicion of scarlet fever; a positive result is not of value but a negative culture (especially if controlled by a second plate) is an argument against the diagnosis of scarlet fever. The problem of carriers and the length of time patients should be isolated is especially open for discussion. Coste and his co-workers isolate scarlet fever patients and give them prolonged disinfectant treatment of the pharynx. Only when the pharynx is free from hemolytic streptococci and home conditions are favorable may patients return home before the fortieth day of the disease. Even if the patient still harbors a few hemolytic streptococci after the fortieth day of the disease, there is no further danger of infection.

Revue de Chirurgie, Paris

67: 375-454, 1929

*Hydatid Ossifluent Abscess of Vertebral Origin: Hydatid Pott's Disease. P. Grisel and F. Dévé.—p. 375.

Hydatid Ossifluent Abscess of Vertebral Origin: Hydatid Pott's Disease.—On the basis of several personal cases and those recorded in the literature, Grisel and Dévé discuss the clinical history of 190 patients. One hundred and sixty-six cases were utilized for their statistics; of these, eighty-three were in men and sixty-two in women (in the remainder the sex had not been recorded). One hundred and thirteen patients died. Fifty recovered after an operation, but only one recovered without operation. In two cases the late report was not available. Of 153 patients in whom the site of the focus could be determined, cervical vertebrae were involved in 7.8 per cent, dorsal vertebrae in 52.9 per cent, lumbar vertebrae in 18.9 per cent and sacral vertebrae in 20.2 per cent. The abscess found in 161 patients was located in 7.4 per cent of the cases in the cervical region, in 52 per cent in the dorsal region, in 13.6 per cent in the lumbar region and in 25.4 per cent in the lumbosacral region. The authors state that, although the prognosis for recovery is doubtful, surgical intervention may have a beneficial action on the paraplegia. Early determination of the site of the lesion is essential.

Revue Française de Gynécologie et d'Obst., Paris

24: 593-656 (Oct.) 1929

*New Technic for Subtotal Abdominal Hysterectomy. L. Gualberto.—p. 593.
Technic of Delivery. J. Kreis.—p. 604.
*Autogenous Origin of Puerperal Peritonitis. P. Guéniot.—p. 617.
Symphysiotomies: Experience in Twenty Cases. R. Desnoyers.—p. 622.

New Technic for Subtotal Abdominal Hysterectomy.—Gualberto reports this method, which, according to his experience in several hundred patients, has been extremely satisfactory. Postoperative disorders have not been noted, menstruation was preserved, and on bimanual examination it was not possible to distinguish whether an operation had been done or not. Gualberto points out that the especial advantage of this operation lies in the fact that the uterine arteries are maintained intact and that the cervix is not sutured, thus ensuring drainage of the cervical cavity. Furthermore, peritoneoplasty of the uterine stump is accomplished, its position, according to Jayle, remaining an ideal one.

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Autogenous Origin of Puerperal Peritonitis.—Guéniot points out that blame for the occurrence of puerperal sepsis laid to the attending physician or other persons assisting in a delivery is not warranted. Infection is not always caused by manipulation. His patient had been pregnant for seven months when a sore throat and congestion of the lungs developed. On puncture of the right pleural cavity, about 200 cc. of pus was evacuated. The condition thereupon improved and in the afternoon of the same day she gave spontaneous birth to a fetus weighing 1,650 Gm.; the placenta was likewise expelled spontaneously. Her condition, however, gradually became worse, repeated vomiting occurred, and three days later death ensued. Necropsy showed that the abdomen was filled with pus, which, however, did not communicate with the right pleural focus.

Schweizerische medizinische Wochenschrift, Basel

59: 1121-1144 (Nov. 9) 1929

*Trophic Postencephalitic Ulcerations of External Nose and of Cheek. E. Schlittler.—p. 1121.
Arsenic Therapy in Lichen Ruber and in Dermatitis Herpetiformis. W. Lutz.—p. 1122.
Protein Therapy in Ophthalmology. H. Müller.—p. 1124.
Trochlear Paralysis Caused by Poisoning with Chlorinated Lime. K. Rehsteiner.—p. 1128.
Attitude of Society Toward Insanity. E. Blum.—p. 1129.
Obstetrics Among Indians in Tropical Bolivia. H. Mehlin.—p. 1132.
Pulmonary Gangrene of Slow Evolution. G. Humbert.—p. 1133.

Trophic Postencephalitic Ulcerations of Nose and of Cheek.—Schlittler reports the case of a boy, aged 14. Three years previously he had shown during several weeks increasing languor and drowsiness. After that he was less active than before and appeared apathic and dull and weak. Later he developed coryza and scratched his nose continually. A rapidly growing ulceration developed. The patient's general condition became steadily worse. The application of ointments brought temporary improvement but the ulcer did not heal entirely. The right ala nasi was almost entirely destroyed and the ulcer extended down to the angle of the mouth. Moist bandages had a cleansing effect on the ulceration but the patient scratched the sore continually; when he was prevented from doing so he became restless. Serologic tests for syphilis gave negative results, and antisyphilitic treatment of the ulcer was of no avail. The ulceration increased steadily. The results of clinical, bacteriologic and microscopic examinations indicated that trophic, postencephalitic disturbances were the cause of the ulceration. The fact that the patient showed hypersalivation and typical manifestations of parkinsonism confirms this diagnosis. Several months later the ulceration started to heal.

Clinica Chirurgica, Milan

32: 1253-1440 (Sept.) 1929

*Results of Resection of Stomach for Gastric and Duodenal Ulcer. B. Rossi and I. Scalone.—p. 1253.
Impressions of a Surgeon at the Congress of Warsaw. B. Rossi.—p. 1386.

Results of Resection of Stomach for Gastric and Duodenal Ulcer.—Rossi and Scalone discuss the reasons why ample gastroduodenal resection must be regarded nowadays as the operation of choice in the surgical treatment of ulcerous gastroduodenal conditions, whereas gastro-enterostomy and partial resections must be reserved for cicatricial sequelae of ulcer and for ulcers in process of cicatrization. In defense of this opinion, they refer to their operative experience in general and, above all, to 200 cases of ulcer in which gastric resection was performed and which they have studied minutely from the clinical point of view, supported by a systematic and careful study of resected specimens and by a check of the late results.

Riforma Medica, Naples

45: 1441-1476 (Oct. 26) 1929

Multiple Chondromas of Bone. G. Jemma.—p. 1445.
*Grave Climacteric Hypertension Treated with Unilateral Suprarenalectomy: Primary Results. G. Galatà.—p. 1449.

Grave Climacteric Hypertension Treated with Unilateral Suprarenalectomy.—Galatà states that it is only in recent years that attention has been called to the arterial hypertension of the climacteric period, which belongs to the group of so-called functional or essential hypertensions. It accompanies or, more frequently, follows the climacteric, and, although its usual duration is only a few years, not infrequently it is prolonged, with a progressive course, for several years after the cessation of the menstrual periods, until it is sometimes confounded with true states of atherosclerotic hypertension. It affects mainly women in whom the climacteric takes a course that may be interpreted, in a broad sense, as sympatheticotonic. The author decided to try the effects of unilateral suprarenalectomy in a case of grave and obstinate climacteric hypertension in a woman, aged 56. He divides his conclusions into those concerning the pathogenesis of this syndrome and those in regard to the utility of the intervention. He holds that the correctness of the theory of suprarenal hyperfunctioning has been experimentally demonstrated. Otherwise, the author is unable to explain how the removal of a suprarenal can occasion a fall of pressure equivalent to 5.5 cm. of mercury on the day of the operation and of 4 cm. more during the three days following, in a patient in whom not only had all the means of treatment not modified the arterial pressure during a period of eighteen months but also there was manifested an obstinate and relatively rapid tendency to increase. He thinks that hyperfunctioning of the suprarenals plays at least a large and possibly the chief part in the syndrome, though not the only one; otherwise his results would have been still more complete than they were.

Rivista di Patologie e Clin. della Tuberculosi, Bologna

3: 845-916 (Oct. 31) 1929

Intestinal Ptosis in Tuberculous Persons. I. Gwerder-Pedoja and L. Kalmar.—p. 845.
*New Biologic Reaction in Urine of Tuberculous Persons. E. Franco.—p. 849.
Presence of Tubercle Bacilli in Blood Stream of Tuberculous Persons. G. Macchioro.—p. 854.

New Biologic Reaction in Urine of Tuberculous Persons.—Franco conducted experiments with the Piazza test applied to the urine of thirty-two tuberculous persons. For the most part they were in the febrile period, with a temperature ranging from 37 to 39.5 C. (98.6 to 103 F.). To test the specificity of the reaction he employed as controls urine specimens from patients with other infectious diseases and applied the test to these as well. The test proved positive in about 65 per cent of the cases. From his experiments Franco concludes that the Piazza method for the diagnosis of tuberculous antigens in the urine is specific for tuberculosis. In no instance did he see in the control cases the reaction concerned. The reaction, in addition to furnishing evidence for a toxemic state, reveals the activity of the tuberculous focus in the production of toxic substances, even when the clinical symptoms are not clear and the evidence of intoxication is slight.

Deutsche medizinische Wochenschrift, Berlin

55: 1869-1912 (Nov. 8) 1929

Value of Psychiatric Examination and Evaluation of Great Historical Personalities. A. Heidenhain.—p. 1869. C'td.
Mechanical Devices for Aid in Confinement. F. Lichtenstein.—p. 1871. C'td.
*Surgical Removal of Echinococcus Cysts from Brain. Gierlich.—p. 1873.
*Susceptibility of Certain Constitutional Types for Tuberculosis. F. Ickert.—p. 1874.
Significance of Daily Blood Sugar Curve for Correct Insulin Dosage. J. Neuburger.—p. 1876.
*Cause of Peritoneal Symptoms in Precomatose Diabetic Patient. G. Scherk.—p. 1878.
Use of Hypophyseal Preparations in Diagnosis of Renal Disturbances. F. Lebermann.—p. 1879.
Increased Frequency of Polyneuritis Manifesting Itself as Landry's Paralysis. A. Adler and H. Hoff.—p. 1880.
Practical Value of Various Therapeutic Methods Used in Combating Rickets. H. Vollmer.—p. 1882.
*Vaccine Therapy in Whooping Cough. K. N. Kyriasides.—p. 1884.
Tuberculous Pyonephrosis Treated as Spondylitic Gravitation Abscess. M. Kirschner.—p. 1885.
Importance of Cod Liver Oil in Herrmannsdorfer's Diet. Birk.—p. 1886.
Improvement in Case of Tuberculosis of Bones Following Treatment with Viosterol. Plath.—p. 1886.
Syphiloma of Stomach Cured by Antisyphilitic Treatment. M. Einhorn.—p. 1887.

Surgical Removal of Echinococcus Cysts from Brain.—Gierlich describes the case of a man, aged 42, who had epileptic attacks of the jacksonian type and disturbances of speech. These symptoms indicated the possible presence of a tumor in the right parietal region. An operation revealed an

echinococcus cyst between the dura mater and the cranial wall. The cyst had exerted pressure on the central convolutions, for soon after the cyst was removed the paralysis of the left side and most of the other symptoms disappeared. Several months later, however, the patient had renewed epileptic attacks and the aphasic disturbances also returned. Medication with phenobarbital did not bring improvement and a second operation became necessary. This time two cysts were removed. The patient recovered, but some of the symptoms remained and the epileptic attacks recurred occasionally. Later the patient's condition improved again. The author thinks that there is probably a fourth cyst. But the marked improvement in the patient's condition indicates that this cyst is partly degenerated. The patient would not consent to another operation. He is able to follow his occupation and feels satisfied with the results of the treatment.

Susceptibility of Certain Constitutional Types for Tuberculosis.—Ickert reports the results of his investigations on the constitutional types of tuberculous patients. He comes to the conclusion that there is not a type which remains entirely free from tuberculosis. However, he noted that the persons belonging to the muscular type contract tuberculosis in smaller numbers than would be expected on the basis of their percental representation among the entire population. Pyknic persons show a comparatively great susceptibility during childhood, whereas in later life they contract tuberculosis comparatively seldom. The mortality from tuberculosis is always low in pyknic persons. Small and delicate and particularly asthenic persons seem most susceptible to tuberculosis not only during childhood but also in later life. This constitutional type has also the highest mortality rate from tuberculosis. Nothing definite is as yet known concerning the causes of the greater susceptibility of some types and the greater resistance of others. The author assumes that the correlation between the sympathetic nervous system and the organs of internal secretion is of some influence.

Cause of Peritoneal Symptoms in Precomatose Diabetic Patient.—In a precomatose diabetic patient, Scherk observed peritoneal symptoms. The severe pains and the distention of the abdomen were at first considered as an accompanying phenomenon of the coma. However, these symptoms did not subside after the coma had passed. On the contrary, they increased in severity. There were no absolute indications for either pancreatitis or appendicitis; but in view of the fact that the patient previously had had gangrene of the left leg, the existence of a thrombosis was assumed. The patient died, and the postmortem examination revealed a thrombosis of the celiac artery. The author concludes that, if abdominal symptoms occur during diabetic coma, one should think not only of diseases of the internal organs but of the possibility of a thrombosis in the abdominal vessels.

Vaccine Therapy in Whooping Cough.—Kyriasides employed vaccine therapy in 113 children during a whooping cough epidemic. First he describes his efforts to improve this method of treatment. It had been proved in experiments that the endotoxins of the pertussis bacillus cause ulcerations, necroses and even death in the test animals. However, the poisonous effects of the toxins can be reduced by exposure to heat. But because under the influence of great heat the immunizing qualities of the toxins would likewise be destroyed, the temperature should not exceed 131 F. The author further points out that the immunity, which is produced only by the pertussis bacillus, would not prevent complications of the disease. Consequently the author prepared polyvalent vaccines from a smear taken from the pharynx of the patients. Besides the pertussis bacillus these cultures also contained other pathogenic micro-organisms. The author then describes in detail how the autovaccines should be prepared. His experiences in 113 cases are summed up as follows: 1. Autovaccine therapy exerts a favorable influence on patients with whooping cough. 2. The polyvalent autovaccine brings the best results; it shortens the duration of the disease and prevents or cures complications. 3. In cases in which it is not possible to prepare a polyvalent autovaccine, heterovaccines may be used. 4. The most favorable effects are obtained if the injections are given in the beginning stage of the disease.

Klinische Wochenschrift, Berlin

8: 2121-2168 (Nov. 12) 1929

Pathogenesis of Cardiac Dyspnea. R. Siebeck.—p. 2121.
*Statistics on Frequency of Thrombosis and Embolism Before and After World War: Possible Causes of Increase. H. Schleussing.—p. 2125.
Contrast Medium for Roentgen Demonstration of Spleen and Liver. P. Radt.—p. 2128.
Symbols for Hydrogen Ion Concentration in Biologic Experiments. G. Joos.—p. 2129.
*Liver Therapy in Pernicious Anemia. H. Milark.—p. 2132.
*Serologic Tests for Syphilis, Influenced by Injection of Serum from Horses and by Ingestion of Horse's Meat and Goat's Milk. W. Frei. —p. 2134.
*Presence of Accessory Pancreatic Rest in Wall of Stomach in Patient with Ulcer of Pylorus. F. Wohlwill.—p. 2137.
Justification for Term Lipogranulomatosis Subcutanea (Makai): Clinical Aspects of This Disease. A. Alexander.—p. 2138.
Experimental Encephalitis in Mice. V. Fischl and W. Schaefer.—p. 2139.
Fluctuation in Resistance Against Diphtheria Toxin Following Immunization with Heterobacteria. S. Nukada and Y. Kako.—p. 2143.
Experimental Insulin Diabetes. P. Wiebels and H. Lauber.—p. 2146.
Influence of Duration of Work on Efficiency. E. Simonson and H. Hebestreit.—p. 2146.
Action of Insulin on Cardiac Fibers of Vagus Nerve in Blood Pressure Test. E. Ruickoldt.—p. 2147.
Maculopapular Exanthem in Patient with Tabes. S. Frankl.—p. 2148.

Frequency of Thrombosis and Embolism Before and After World War.—Schleussing directs attention to the fact that thrombosis and embolism have been increasing in recent years. In a tabular report he gives the number of thromboses, embolisms and fatal pulmonary embolisms that were detected during postmortem examination in the pathologic institute in Düsseldorf during the years preceding the World War and in the years after. The table shows that these conditions have been increasing during recent years. The author also noted that the increase was more marked in patients who had received internal treatment than in patients who had undergone operations. Fatal pulmonary embolisms were most frequent among persons of comparatively high body weight. Careful investigations convinced the author that injections, especially those given intravenously, are often an etiologic factor in thrombosis and embolism. He mentions other authorities who are of the same opinion. The author does not wish to dispute the therapeutic value of injections. However, he stresses that injections should not be considered as entirely harmless procedures.

Liver Therapy in Pernicious Anemia.—Milark reports his experiences with liver therapy in pernicious anemia. He found that fresh liver is more effective than liver extracts. He stresses that the treatment, in order to be effective, has to be continued for a sufficient length of time. The strict liver diet should last from four to eight weeks. After that liver should be given at least two or three times each week. To discontinue the liver treatment for extended periods is not advisable. In order to counteract the achylia gastrica, which is a common symptom in pernicious anemia, the author administered dilute hydrochloric acid. He also found that when viosterol was given in combination with the liver the condition of the blood improved more rapidly than in cases of exclusive liver therapy. On the basis of his experiments the author comes to the conclusion that the results of liver therapy are usually favorable, provided it is carried out in the right manner. Several cases are reported which ended in death. However, it is shown that the unfavorable outcome was caused either by complicating diseases or by the fact that the liver therapy was begun too late.

Serologic Tests for Syphilis, Influenced by Injection of Serum from Horses and by Ingestion of Horse's Meat and Goat's Milk.—Frei confirms the statements of Hentschel and Szegö. These authors observed that immunization with serums from horses often caused positive syphilis reactions in persons who were entirely free from syphilitic infection. They thought that these positive reactions, especially in the Meinicke turbidity test, were due to the fact that extracts from hearts of horses were used as reagents in the serologic tests. Several years previously the author had noticed that in children who had been given goat's milk, either enterally or parenterally, the Meinicke turbidity reaction became positive in cases in which there was no indication of syphilis. His theory was that Forssmann's antibodies are present in the reagent and also in the blood serum of these children. Ordinarily the human

serum has a small number of Forssmann's antibodies, but the ingestion of goat's milk increases the number considerably, and thus a positive reaction results. The author observed positive Meinicke turbidity reactions likewise in adults in whom the anamnesis revealed that at some time they had drunk goat's milk. In order to determine whether Forssmann's antibodies were really the underlying cause of these manifestations, the author made tests on persons who for years had eaten horse's meat. Five such persons were examined, but in none of them was the Meinicke turbidity reaction positive. The results of these tests do not discredit the value of the Meinicke reactions. They only show that attempts should be made to detect, in the anamnesis, whether the serum of the patient probably contains large numbers of Forssmann antibodies. They also show that the reagents which are used in serologic tests should be free from Forssmann antibodies. The author points out that the extracts employed for the Meinicke clarification reaction already fulfil this requirement.

Presence of Accessory Pancreatic Rest in Wall of Stomach in Patient with Ulcer of Pylorus.—Wohlwill reports a case in which a man, aged 30, had been suffering from gastric disturbances. Because other treatments were of no avail the patient underwent pylorectomy. Microscopic examination of the resected pylorus revealed not only a typical ulcus simplex, about the size of a lentil, but also an accessory pancreatic rest. The latter was about the size of a pea. It had the typical structure of the pancreas with excretory ducts and islands of Langerhans. The main excretory duct ended in the mucous membrane immediately beside the ulcer. The author discusses whether this concurrence of the accessory pancreatic rest and the ulcer was merely accidental or whether the existence of the pancreatic rest had been an etiologic factor in the development of the ulcer. Some authorities think that trypsin may cause an ulcer whereas others reject this theory. The author thinks that a tryptic ulcer is possible but states that there is no definite proof for a causal relation, and furthermore that a general conclusion cannot be drawn from the observation of one case.

Medizinische Klinik, Berlin

25: 1725-1764 (Nov. 8) 1929

Diagnosis of Pregnancy by Demonstration of Hormone of Anterior Lobe of Hypophysis in Urine. E. Vogt.—p. 1725.
Results of Newer Investigations on Tuberculosis: Treatment of Pulmonary Tuberculosis. G. Leendertz.—p. 1727. C'cn.
Influence of Insulin on Blood Pressure in Diabetes Mellitus. J. St. Lorant and M. Slavik.—p. 1730.
Diagnosis of Pigmented Neoplasms of Skin. C. Kreibich.—p. 1732.
*Olive Oil in Feeding of Infants and Small Children. A. Reuss.—p. 1733.
Myoma of Cervix as Predisposing Factor in Rupture of Uterus. G. Kleff.—p. 1736.
*Sudden Death Caused by Tumor of Brain. L. Pawlitzky.—p. 1738.
*Icterus Simplex in Early Infancy. W. Stern.—p. 1740.
Results of Necropsy in Case of Eunuchoidism. E. J. Kraus.—p. 1741.
Diagnosis and Treatment in Furuncles and Carbuncles. Hayward.—p. 1743. C'td.
Simple Aid for Introduction of Ointments into Nose. J. Bumba.—p. 1746.

Olive Oil in Feeding of Infants and Small Children.—According to Reuss, olive oil is as valuable as butter in the feeding of infants. He enumerates the good results that have been obtained by other investigators and then he describes how olive oil may be used in preparing foods for infants and children. He asserts that foods which were prepared with olive oil were taken by children just as readily as foods that were prepared with butter. Disturbances in the gastro-intestinal tract or other harmful effects were not noted.

Sudden Death Caused by Tumor of Brain.—Pawlitzky points out that in cases of sudden death poisoning is often considered the cause. He reports two cases in which the necropsy revealed the real cause of death. The first patient, a man, aged 25, had not shown cerebral symptoms except for occasional headaches. One evening he had an attack of vomiting and a severe headache; he then had an epileptic attack of the jacksonian type, became unconscious and died shortly after. Because he was a chemist, poisoning was thought of. During the necropsy a tumor was found on the pineal body. The growth was about the size of a hazelnut and was soft and pale red. Microscopic examination revealed a cystic glioma. The author thinks that the tumor had caused a disturbance in the circulation of the cerebrospinal fluid, which in turn had caused a congestion of the venous blood. This would also explain the hyperemia in the brain, the hemorrhages in the plexus, the enlargement of the cerebral ventricles, the increased quantity of cerebrospinal fluid, and the edema of the brain and of the meninges. The clinical manifestations, especially the epileptic attack, were evidently the outcome of these anatomic changes. The second patient, a woman, aged 35, consulted a physician stating that for the past five or six months she had been bothered with severe headaches in the occipital region. The neurologic examination did not reveal any abnormalities. Thinking that the headaches were caused by functional disturbances, the physician prescribed phenobarbital. On the following day severe headaches and vomiting set in. The gastric region was extremely sensitive to pressure and the patient stated that she had eaten sausage on the preceding evening. Consequently, poisoning was thought of. On the following day the woman died. Postmortem examination revealed a tumor on the septum pellucidum. The growth was compact, whitish, and of the size of a walnut. On microscopic examination it was found to be a fibrous glioma. Aside from changes in the brain, which had probably been caused by the tumor, the necropsy did not reveal pathologic conditions.

Icterus Simplex in Early Infancy.—Stern describes a case of icterus simplex in a boy, aged 6 weeks. The patient was the first child of healthy parents. There had been signs of icterus neonatorum, but the birth had been normal. During the first six weeks of life the child was well. Then he developed fever, dyspeptic symptoms and an icteric discoloration. The liver was enlarged, but the spleen was not. The temperature was 102.5 F. The patient showed temporary improvement. Later, phlegmons developed and the child died. The author discusses the differential diagnosis. He enumerates the characteristic symptoms in other forms of icterus. However, in this case the results of the examination of the urine, the feces and the blood, as well as the clinical aspects, confirm the diagnosis icterus simplex. A postmortem examination could not be performed.

Wiener Archiv für innere Medizin, Vienna

18: 1-486 (Oct. 10) 1929. Partial Index

*Emptying Reflex of Gallbladder in Postencephalitic Parkinsonism. D. Adlersberg.—p. 1.
*Diagnosis of Renal Diabetes. W. Falta.—p. 45.
*Respiratory Variations in Volume of Pulse. R. Fischer and M. Schur. —p. 151.
*Cardiac Weakness. H. Kutschera-Aichbergen.—p. 209.
*Fat Content of Blood in Hyperthermia and in Hypothermia. W. Raab. —p. 387.
*Etiology of High Blood Pressure. R. Strisower.—p. 445.

Emptying Reflex of Gallbladder in Postencephalitic Parkinsonism.—Adlersberg states that in repeated examinations of two patients with postencephalitic parkinsonism the administration of weak agents as magnesium sulphate was promptly followed by the emptying reflex of the gallbladder but the administration of pituitary extract was not. He believes that the magnesium sulphate reflex arc is short, passing directly from the duodenum to the gallbladder, whereas the pituitary extract reflex arc is long, extending up into the brain stem.

Diagnosis of Renal Diabetes.—According to Falta, renal diabetes is characterized by the fact that, although dextrose is excreted in the urine, the sugar level of the blood is not increased. Even in normal persons the blood sugar varies markedly with the composition of the food and the state of nutrition. In typical renal diabetes, all functional tests reveal a normal range of functioning of the insular tissue of the pancreas. All other "criteria" of renal diabetes are of only relative value. There are severe, mild and very mild cases of renal diabetes, and some with and some without involvement of the insular tissue of the pancreas. On the other hand there are also cases of pancreatic diabetes with involvement of the kidney. In addition there are transitions from renal to pancreatic diabetes. The so-called glycosuria of pregnancy is a transient renal diabetes.

Respiratory Variations in Volume of Pulse.—Fischer and Schur demonstrated that in normal persons there is regularly a decrease in the volume of the pulse during inspiration, an increase during expiration and a pulse of medium volume during the respiratory pause. In patients with adhesive peri-

carditis there is always the same relation between the pulse during inspiration and during expiration, but the pulse of greatest volume occurs during the respiratory phase.

Cardiac Weakness.—Kutschera-Aichbergen emphasizes the importance of the functional capacity of the myocardium in circulatory insufficiency. Weakness of the myocardium is frequently caused by fatigue; as a rule, it is not accompanied by morphologic changes. Fatigue in heart muscle follows essentially the same laws as fatigue in skeletal muscle, and the factors concerned and the changes produced can be analyzed.

Fat Content of Blood in Hyperthermia and in Hypothermia.—In experiments on dogs, Raab found that when the metabolism was increased (by fever produced by means of tetrahydrobetanaphthylamine or vaccine and by chilling in a water bath) the amount of fat in the blood in most cases was increased for several hours. He believes that the increased amount of fat in the blood indicated that the absorption of fat by the liver was overbalanced by the peripheral mobilization of fat (Wertheimer reflex) and that this fact supports Grafe's theory that during fasting the fever metabolism is to be considered a quantitatively increased hunger metabolism.

Etiology of High Blood Pressure.—In experiments on rabbits, Strisower demonstrated that injury of only the peripheral blood vessels cannot cause high blood pressure. In the production of this condition other harmful influences, which disturb (perhaps centrally) the coordination of the vasomotor nerves, are necessary.

Wiener klinische Wochenschrift, Vienna

42: 1461-1492 (Nov. 14) 1929

Cancer of Internal Organs. W. Nonnenbruch.—p. 1461.
Clinical Hemodynamics. J. Plesch.—p. 1465. C'en.
Sudden Death of Child Following Rupture of Cardiac Aneurysm. W. Laves.—p. 1469.
Staphylococcal Sepsis with Transition to Subacute Leukemia. F. Donath. —p. 1470.
Enlargement of Mediastinal Lymph Nodes in Adults. L. Vajda.—p. 1473.
*Hyperthyroidism in Patient with Schizophrenia. P. Deuticke.—p. 1475.
Psychotherapy in Gynecology. L. Dittel.—p. 1478.
Therapy in Typical Birth Traumatism. C. Bucura.—p. 1479.
Relation Between Infectious Mononucleosis and Vincent's Angina. J. Zikowsky.—p. 1479.
Incorrect Application of Quartz Lamp. J. Kowarschik.—p. 1480.
Progress in Surgical Therapy in Febrile Diseases. B. Breitner.—p. 1482.

Hyperthyroidism in Patient with Schizophrenia.—Deuticke reports the case of a man, aged 34. The father and one sister were imbecile. During childhood and also in later life the patient had been secretive and often depressed. Later he developed peculiarities, so that institutional treatment became necessary. The insanity was of the schizophrenic type. At times the patient's condition improved but relapses always occurred. At the age of 34 he showed signs of hyperthyroidism. He had cardiac disturbances and trembled, and his neck enlarged. However, the disease had some unusual aspects. The eye symptoms and diarrhea were absent. Strumectomy was performed and it was noted that the coagulation of the blood was not as markedly retarded as is characteristic for patients with exophthalmic goiter. The viscosity was almost like that in hypothyroidism. A susceptibility to epinephrine and to pilocarpine, which is usually noted in patients with exophthalmic goiter, was likewise absent. Concerning the relation between insanity and hyperthyroidism, the author states that manic depressive insanity often concurs with exophthalmic goiter. However, in schizophrenic persons hyperthyroidism is rare.

Zentralblatt für Chirurgie, Leipzig

56: 2817-2880 (Nov. 9) 1929

*Lumbosacral Sympathetic Ganglionectomy. V. Sanchis Perpiñá.—p. 2818.
*Appendicitis and Gastric Crises. N. A. Sinakewitsch and N. N. Toporkoff.—p. 2823.
Enormous Subcutaneous Emphysema of Head and Neck as Result of Forced Respiration After Anesthesia. C. Ritter.—p. 2827.
Nonoperative Treatment of Curvatures of Tibia and Fibula Caused by Osteomalacia. H. Watermann.—p. 2828.

Lumbosacral Sympathetic Ganglionectomy.—Sanchis Perpiñá prefers ganglionectomy to ramisectomy and periarterial sympathectomy. He suggests, in a tentative manner, that perhaps the cause of vasomotor disturbances may lie in an injury of the ganglionic sympathetic cells. This thought is based on the discovery on microscopic examination of a resected ganglion in a case of arteriosclerotic gangrene cited that none of the sympathetic cells gave evidence of chronic irritation, but everywhere they showed an extremely marked pigment degeneration which could not be ascribed to age. The operation is described in detail. It is entirely an extraperitoneal one and the approach is through an incision such as is made for removal of the appendix, except that it is of greater length, reaching from the level of the umbilicus to about the middle of the groin.

Appendicitis and Gastric Crises.—Sinakewitsch and Toporkoff point out that often the gastric crises of tabes are mistaken for a symptom of appendicitis and other abdominal inflammations. He cites a number of cases to prove his point. He suggests that in all doubtful cases a serologic examination and an analysis of the cerebrospinal fluid should be made before an operation is performed. This is especially true when the patient is a child or a youth or maid, when hereditary syphilis assumes such an important rôle in the etiology of diseases.

Bibliotek for Læger, Copenhagen

121: 375-462 (Sept.) 1929

*Pathologic Renal Functioning in Diseases of Kidney. C. Holten and P. B. Rehberg.—p. 375.

Pathologic Renal Functioning in Diseases of Kidney.—Holten and Rehberg refer to their article as an attempt to apply clinically a modification (Rehberg) of Cushny's theory of the functioning of the kidneys, partly by working out function tests, partly by interpreting various pathologic conditions. A report is given on the results of examinations of the renal functioning in forty-one cases representing different groups of nephritis, five of hypertension and four of "surgical" disorders of the kidney.

121: 463-509 (Oct.) 1929

*Rise in Blood Pressure After Injections of Insulin. A. Brems and C. Holten.—p. 463.
Vital Significance of Hypophysis. S. Felding.—p. 483.
Sugar Content of Spinal Fluid. C. J. Munch-Petersen.—p. 498.

Rise in Blood Pressure After Injections of Insulin.—Brems and Holten state that, in certain normal as well as diabetic persons, subcutaneous and intravenous injections of small amounts of insulin were followed by a considerable rise in the systolic blood pressure. The rise occurred in all cases with so-called hyperglycemic symptoms in the form of vasomotor phenomena, hunger and perspiration, and in these cases only. A close parallelism was noted between the rise in blood pressure and the "insulin cases." The increased blood pressure is believed to be caused by a hypersuprarenalism resulting from a central irritation, presumably localized in the medulla oblongata or the thalamencephalon. This central irritation is thought to play a part in the origin and development of the insulin cases and is probably, at all events to some degree, dependent on the fall of the blood sugar. The assumed hypersuprarenalism after injections of insulin must by its mobilization of glycogen disturb and modify the effect of the insulin on the blood sugar.

Ugeskrift for Læger, Copenhagen

91: 1013-1040 (Nov. 14) 1929

*Clinical Value of Determinations of Basal Metabolism. T. Funding.—p. 1013.
Test for Hematuria. K. Schroeder.—p. 1015.
Supposed AB Group with Nondemonstrable A Receptor. O. Thomsen. —p. 1017.
Gerson's Diet for Tuberculosis. M. Hindhede.—p. 1018.
Dietetic Change of Constitution in Treatment of Polyarthritis. E. Nyrop. —p. 1022.

Clinical Value of Determinations of Basal Metabolism.—Funding finds the determination of the basal metabolism according to Krogh a diagnostic aid in many cases of myxedema and exophthalmic goiter, in which it may also afford an indication of the degree of the pathologic changes and, and to a certain extent, of the effect of the treatment. In some cases of goiter more marked departures from the normal may be of significance in the therapy. In certain cases of adipositas the test may give information on changes in metabolism, likewise in a number of cases in which disturbances in the endocrine system are suspected.